BLIZZARD

STRAIGHT BLADES

www.blizzardplows.com

2004 Assembly & Operation Manual

Blizzard® Straight Blade Snowplow
Models 680LT & 720LT

Introduction

Congratulations on purchasing the finest straight blade snowplow available! Blizzard straight blades are clearing new trails for innovative design, rugged durability, quality craftsmanship and superior performance. Our exclusive products are manufactured and tested in Michigan's Upper Peninsula, the snow capital of the Midwest. With an annual snowfall averaging over 250," we couldn't imagine building snow removal products anywhere else!

Your Blizzard straight blade is equipped with versatile features designed for years of dependable service. The hydraulic draw latch mounting system positively aligns the plow for fast installation or removal. All Blizzard straight blade snowplows feature an extended moldboard. This unique construction provides an additional 5" of blade that rolls snow farther ahead and to the side when plowing. Now you can move snow faster, saving fuel and reducing wear on your truck and plow. Safety features include full moldboard trip action, enclosed hydraulics and automatic cylinder pressure relief.

To ensure years of optimum snowplow performance, review the contents of this manual. It contains assembly information, detailed diagrams, complete parts listings, maintenance guidelines and troubleshooting tips.

Should you need additional information, contact your local Blizzard snowplow dealer. Their knowledgeable staff is well informed on the latest straight blade information. They are also your source for replacement parts, technical assistance and all service repairs.

Comments, suggestions or concerns? Address all correspondence to:

Blizzard Corporation
Customer Service Department
95 Airpark Boulevard
Calumet, MI 49913

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Snowplow Accessories

All of the accessories pictured below are currently offered for your snowplow. See your local authorized Blizzard dealer for pricing and availability. Visit our web site at www.blizzardplows.com to view new snowplow accessories and our latest Blizzard snowplow wearables.

Straight Blade Joystick Window Mount Bracket
P/N 61261

This adjustable bracket mounts easily to your straight blade joystick control and installs quickly onto any door panel. Ideal for left hand joystick operation or for vehicles with center consoles. The window mount bracket is shipped complete with hardware. Some assembly required.

Adjustable Pedestal Mount (For use with all controls)
P/N 63078 (12" Shaft)

Easy-to-install and flexible, our adjustable pedestal mount will position your straight blade snowplow control station how you want it! Available in a 12" extension, this quality built accessory will install on all Blizzard snowplow control stations in minutes! Ideal for bucket seat vehicles with low center consoles. Pedestal mount accessory shipped with complete hardware and adapter plate.

Touch Pad Control Station
P/N 62142

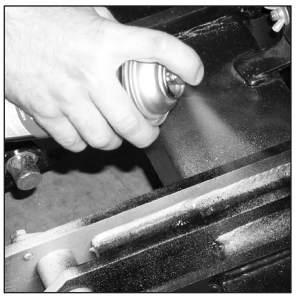
Small and compact, the Blizzard straight blade snowplow touch pad control offers ergonomic comfort behind the wheel. Whether you hold it in your hand, strap it on your leg, wrap it around your seat or mount it to the dashboard, this control will provide the flexibility you need! Control is shipped with a molded plastic leg tray, adjustable Velcro® strap and extra Velcro® patches. Control measures 3-1/4" x 3-1/4" x 1-5/16".

Blizzard Snowplows Emergency Parts Kit
P/N 63115

Be prepared for unexpected plow emergencies! This kit includes the most common replacement parts conveniently packaged in a small, durable plastic case. Custom foam insert holds the following plow parts: Angle cylinder hose, lift cylinder hose, hitch pin w/hair pin cotter, angle cylinder clevis pin w/cotter, hydraulic adapters, solenoid, Power Hitch™ toggle switch, corrosion preventive compound (2 oz.) and 10A fuse. The compact case (13.5"x9"x3.3") allows for easy storage behind or under your truck seat.

Blizzard Snowplow Rapid Action Hydraulic Oil
P/N 63070 (Quart)
P/N 63071 (12 Quarts/Case)
P/N 63072 (Gallon)
P/N 63069 (4 Gallons/Case)

Blizzard hydraulic oil is specially formulated for use in Blizzard snowplows. This zinc-free product can significantly enhance the operation and performance of the hydraulic system in the most inclement weather conditions. Blizzard hydraulic oil maintains its viscosity to temperatures as low as -60˚F. Blizzard oil is available by the quart, gallon or case.



Blizzard Snowplow Touch-Up Paint
P/N 61219 (Gloss White)
P/N 63073 (Gloss Black)

Putting your snowplow away for the winter? Have a deep scratch to cover? Clean up your blade and plow parts with our gloss spray paints. Blizzard snowplow touch-up paint provides an excellent finish to help keep your snowplow looking its best. Paint provided in 12 oz. spray cans.

Warning!

WARNING:

CAUTION:

Prior to operating your straight blade, review the WARNING! label at the passenger's side rear of the moldboard (shown below).

Note: Read and understand all warnings indicated in this manual prior to operating the snowplow. Warnings and cautions in the manual are indicated by the icons shown to the left.

⚠ WARNING

1. **Properly mount the snowplow prior to moving the vehicle.**
2. **To prevent accidental plow activation, turn the Power switch on the snowplow control to the "OFF" position when not in use.**
3. **Stand clear of the attachment area when mounting the snowplow to the undercarriage and operating the Power Hitch Connect/Disconnect switch. Failure to do so may result in serious injury or death.**
4. **Securely position all mounting pins prior to operating your snowplow.**
5. **Do not position your body between the snowplow and the vehicle when servicing or operating.**
6. **Position snowplow in such a manner as to not block your vision or plow headlights while in transit.**
7. **Do not change the position of the snowplow while in transit.**
8. **Do not exceed 40 mph when transporting the snowplow.**
9. **Do not exceed 10 mph when plowing.**
10. **Always lower the snowplow when the vehicle is parked.**
11. **Vehicles equipped with air bags are designed to be activated in a frontal collision equivalent to hitting a solid object or barrier at approximately 14 mph or more.**

⚠WARNING

Careless or high speed driving while plowing snow, which results in vehicle impact deceleration equivalent to or greater than the airbag deployment threshold described above, would deploy the airbag.

Blizzard straight blade snowplows are protected by U.S. Patents 6,178,669; 6,276,076 and 6,393,737. Other patents pending.

BLIZZARD STRAIGHT BLADES

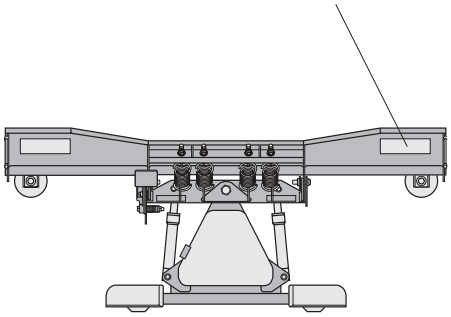
READ OWNER'S MANUAL THOROUGHLY PRIOR TO OPERATING PLOW.

BLIZZARD® CORPORATION

Calumet, Michigan 49913

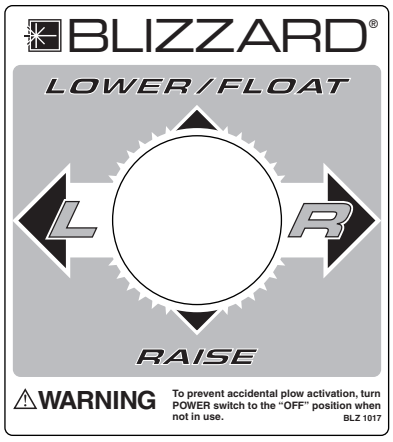
BLZ 1060

Should the WARNING! label or any of the labels that came with your snowplow become hard to read or wear off, contact your local authorized Blizzard dealer for replacements.

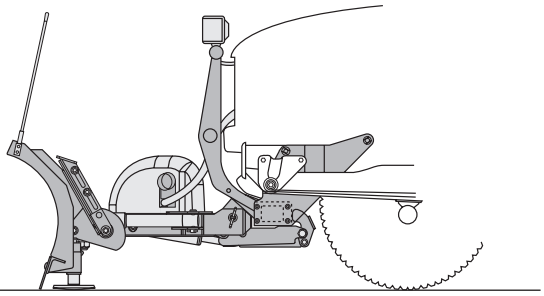


Snowplow Operation

Your snowplow is the most advanced and versatile straight blade on the market. The easy-to-use joystick control allows you to automatically adjust the plow blade into an infinite number of plowing positions. Review the illustrations below for instruction on maneuvering your snowplow.

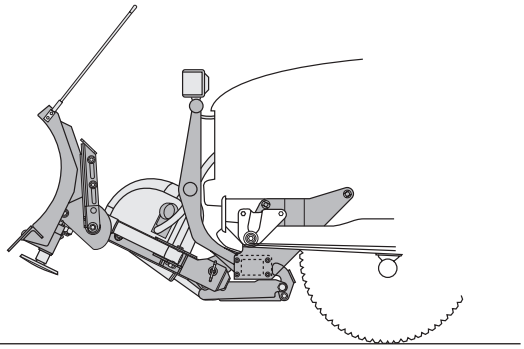


A.



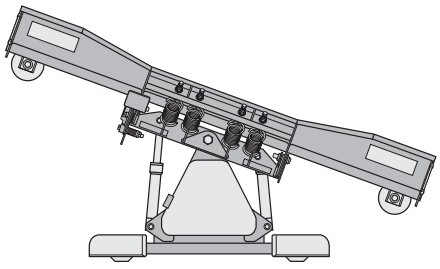
A. Lowered or Float Position
Pushing the joystick forward, toward the "Lower/ Float" designation on the label, will lower your straight blade to the ground. Pushing and momentarily holding the joystick ahead will allow the snowplow to "float", or follow the contour of the ground when moving forward or backward.

B.



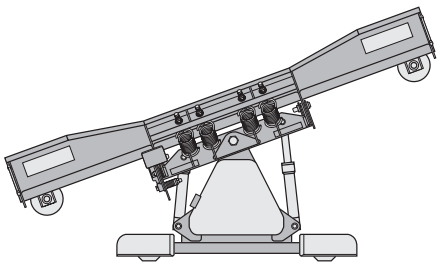
B. Raised Position
Pulling the joystick back, toward the "Raise" designation on the label, will lift your straight blade off of the ground. To stop raising the plow, simply return the joystick to its "neutral" or center position. The snowplow has reached its maximum raised position when the blade stops lifting – return the joystick to its neutral position.

C.



C. Angled Right Position
To angle your straight blade to the right, position the joystick toward the "R" on the label. To stop angling the plow, return the joystick to its "neutral" or center position. The snowplow has reached its maximum angled position when the blade stops moving to the right side.

D.



D. Angled Left Position
To angle your straight blade to the left, position the joystick toward the "L" on the label. To stop angling the plow, return the joystick to its "neutral" or center position. The snowplow has reached its maximum angled position when the blade stops moving to the left side.

******* IMPORTANT *******

To prevent premature failure of the power contactor (solenoid), initiate the plow function and return the joystick to its neutral or center position—except float. DO NOT hold the joystick in any position that allows the pump to continuously run after the plow has reached its maximum degree of movement. This will reduce the useful life of the solenoid.

Assembly Instructions

Unpacking & Inspection

Date of Purchase

Dealer/Distributor

Telephone Number

Snowplow Serial Number

Hydraulic Pump Serial Number

Your Blizzard straight blade has been packaged to withstand transit and weather related damage. Fully inspect all components upon receipt of your plow. In the event of shipping damage or missing parts, immediately contact our Customer Service Department toll free at 1-888-680-8600.

Begin unpacking and inspection in the following order:

1. Remove the shipping document from the end panel of the pallet wrap. Retain all documentation for your records.

2. All wood framing and polyethylene material should be removed from the pallet for easy access to the snowplow.

3. Due to the odd shaped components and size of several assembly parts, various cable ties and corrugated material are used for scratch resistance and package orientation. Please remove these items prior to assembly.

4. Place the main blade assembly on a flat, level surface.

Once you have inspected all parts and removed all packaging materials, your snowplow is ready to be fully assembled.

Pallet Wrap End Panel

The tear resistant woven polyethylene pallet wrap contains a moisture barrier to help protect all packaged components and keep out the most inclement weather during shipping and storage. The end panel of the pallet cover contains important information regarding the snowplow model and the plow's serial number. Both of these numbers are given together. The first three digits and two letters in the the number indicated is always the plow model 680LT or 720LT – and the entire ten digit number make up the serial number. The shipping document is also attached to the end panel. Be sure to retain this list for your records.

Moldboard & A-Frame Assembly

1. Begin the moldboard assembly by positioning the PIVOT BEAM and A-FRAME near the connecting points at the rear of the blade between the two center support ribs. Position the pivot beam between the two support ribs until the connecting points on the beam align with those on the plow. Insert one 3/4" DIA. x 3" CLEVIS PIN through each mounting hole and secure them with one 1/4" DIA. x 1-1/2" COTTER PIN.

   Note: Mount the kickstand to the end of the pivot beam (driver's side) using the 1/2"-13 x 4-1/2" bolt provided. The spring, bushing and lock nut locate on the inside of the pivot beam. Review the diagram to the right and on page 22. Upon installation, rotate the spring loaded kickstand clockwise until it locks into place. Adjust the foot on the stand arm so the height of the A-frame, at its mount points, is 10-1/2" to level ground. Tighten both of the 1/2"-13 top lock nuts on the kickstand.

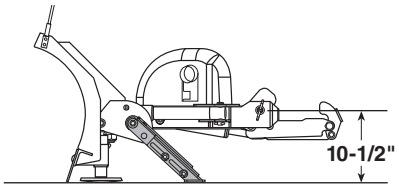
   Note: To prevent the kickstand from hitting the ground before the snowplow cutting edges, causing stress on the kickstand lock pin, adjust the kickstand foot approximately 1/8" short of level ground. This procedure will provide clearance for the kickstand when the snowplow is lowered with the kickstand in the down position.

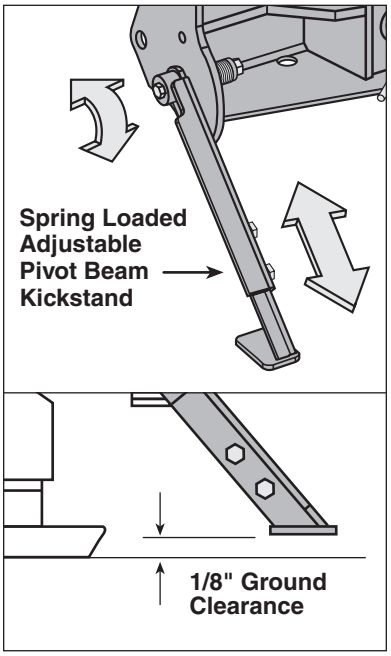
2. Remove each dust cap from both of the ANGLE CYLINDER ports and attach one 7/16"-20 x 7/16"-20 MALE O.R.B. CONNECTOR ADAPTER to each port. *Note: All of the hydraulic adapters can be found packaged with the manifold assembly. Reference the torque specifications table on page 33.* Connect one 1/4" x 15" hydraulic hose (P/N 60294) to the driver's side angle cylinder adapter. *Note: The 90˚ end on the hose connects to the manifold.* Connect one 1/4" x 20" hydraulic hose (P/N 60296) to the passenger's side angle cylinder adapter. Be careful not to overtighten the hose connections. Route both hoses through the access holes in A-frame at the A-frame angle cylinder mount brackets. Both hoses should extend through the triangular openings at the top of the A-frame.

3. Position each ANGLE CYLINDER with the rod end of the cylinder in the pivot beam and the base end in the A-frame angle cylinder mount bracket. Secure each cylinder to the pivot beam and A-frame using two 3/4" x 3" CLEVIS PINS with 1/4" x 1-1/2" COTTER PINS.

4. Next, remove both of the plastic dust caps from the HYDRAULIC LIFT CYLINDER ports. Attach one 7/16"-20 x 7/16"-20 MALE O.R.B. CONNECTOR ADAPTER to the retract port (rod end) and one 7/16"-20 x 7/16"-20 90˚ O.R.B. ADJUSTABLE ELBOW ADAPTER to the extend port (base end). Once the adapters have been installed on the cylinder, connect the rod end hose. The male connector adapter receives a 1/4" x 18" hydraulic hose (P/N 60295).

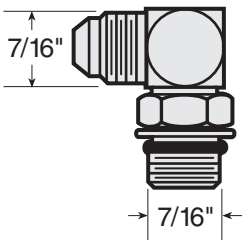
5. Position the lift cylinder in the channel opening under the A-frame. Route the 18" rod end hose through the front (closest to the pivot beam) 2" diameter hole in the A-frame. The lift cylinder base end hole should align with the holes on either side of the channel. Secure the lift cylinder to the A-frame using one 5/8" DIA. x 5-3/4" CLEVIS PIN and one 1/4" x 1-1/2" cotter pin. Use the access hole in the A-frame, located at the driver's side, to install the clevis pin. The 90˚ adjustable elbow adapter receives the 1/4" x 10" hydraulic hose (P/N 60293).



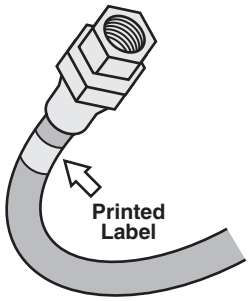


The kickstand mounts to the side of the pivot beam with one 1/2"-13 x 4-1/2" hex cap screw and top lock nut. To pivot the kickstand, simply pull the spring loaded leg out and rotate it until the pin locks into place. The kickstand also has an adjustable foot that can be moved to accommodate varying vehicle heights. Adjust the kickstand foot approximately 1/8" short of level ground. This will prevent the kickstand from hitting the ground before the plow cutting edges. The proper height of your snowplow mounting points to level ground should be set at 10-1/2".

Male O.R.B. Connector Adapter



90˚ O.R.B. Adjustable Elbow Adapter

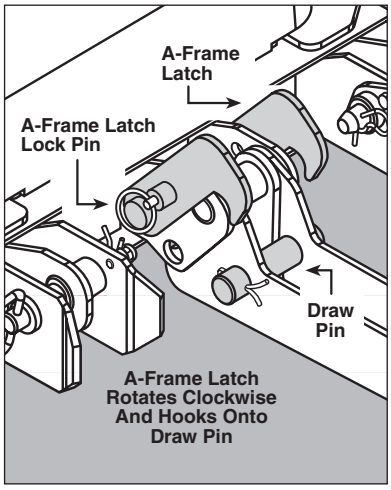


All of the hoses shipped with the snowplow contain a printed label (with a part number) applied to the hose. Install the following hoses to their respective ports on the manifold:

Hose P/N 60294 Port #1
Hose P/N 60296 Port #2
Hose P/N 60293 Port #3
Hose P/N 60295 Port #4

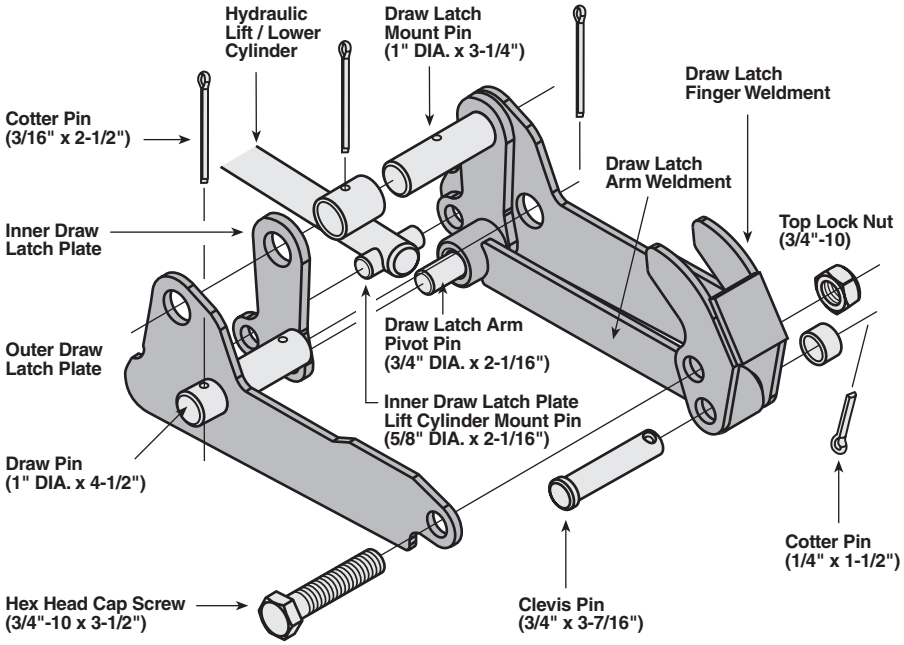
Draw Latch Assembly

The draw latch consists of a series of interconnected plates and pins that attach to the A-frame and the hydraulic lift cylinder.



To mount the straight blade, the A-frame latch should be lowered over the draw pin–this allows the draw latch to pull the plow into the undercarriage. Once the plow is safely attached to the undercarriage, rotate the A-frame latch counterclockwise until the lock pin snaps into place. The A-frame latch is only used to mount the plow. **The A-frame latch should always be locked in place when not in use.**

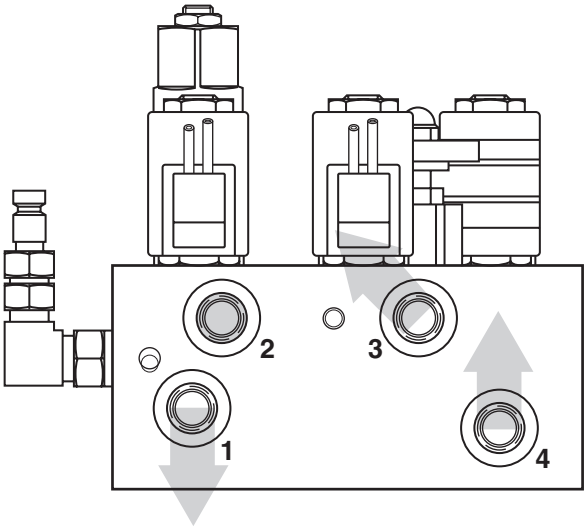
6. Begin the draw latch installation by first removing the DRAW LATCH MOUNT PIN, SPACER & COTTER PIN from the assembly. By removing this pin, the INNER DRAW LATCH PLATES can swing free. Proceed to remove the INNER DRAW LATCH PLATE LIFT CYLINDER MOUNT PIN. Position the plates on either side of the lift cylinder rod and insert the pin through the plates and cylinder rod. With the cylinder connected to the inner draw latch plates, rotate the draw latch assembly toward the draw latch mount holes on the A-frame. Align the holes in the outer draw latch plate with those of the inner draw latch plates and the A-frame. *Note: The A-FRAME LATCH, located at the rear center of the A-frame, should be raised up to insert the draw latch mount pin. Pull the A-FRAME LATCH PULL PIN out and rotate the latch counterclockwise if it is locked into position.* Secure the assembly to the A-frame by replacing the draw latch mount pin spacer and cotter pin. Reset the A-frame latch so the latch pull pin locks into place.

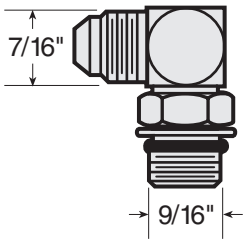


Once you have completed the draw latch installation, proceed to assemble the manifold. The manifold, pump and coil harness have been joined together at the factory; however, the manifold contains several components that you will need to install prior to securing the assembly to the A-frame.

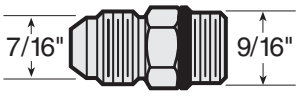
7. Each of the 4 HOSE PORTS on the HYDRAULIC MANIFOLD are covered with stretch wrap. Remove the wrap and install the appropriate fitting (illustrated on page 7) in its respective port.

   Note: All ports are identified by a stamped number on the manifold. The numbers also identify the hydraulic functions, which can be referenced on the label under the hydraulic pump and manifold cover (see illustration on page 7).





90˚ Adjustable Elbow O.R.B. Adapter
(Ports #1, #3 & #4)



Male O.R.B. Connector Adapter
(Port #2)

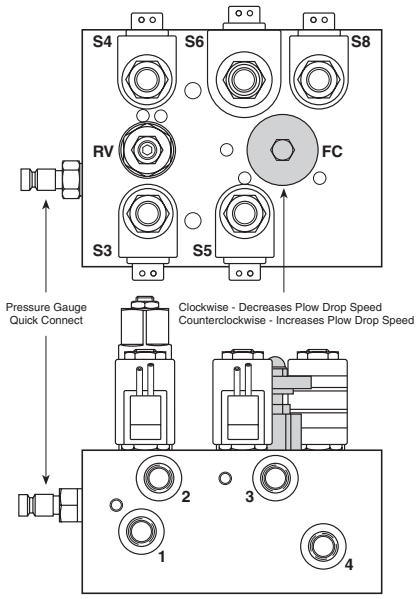
Installing The Manifold Adapters

There are a total of 4 hydraulic adapters to install. All of the adapters can be found packaged with the manifold assembly. Remove the protective stretch wrap from the manifold in a clean area. **DO NOT** let any foreign objects enter into the open ports. The valves can become contaminated and greatly hinder the plow's performance. Review the table on page 33 for proper torque specifications.

Note: The gray arrows shown in the manifold illustration above indicate the direction the 90˚ adapters should face to receive the hydraulic hoses.

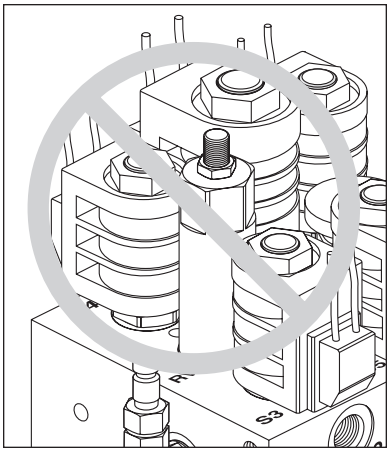
Hydraulic Hose Identification Guide

Straight Blade Snowplows



HYDRAULIC HOSES	
Port	**Function**
1	Right Angle - Left Cylinder
2	Left Angle - Right Cylinder
3	Raise - Lift Cylinder (Base)
4	Lower - Lift Cylinder (Rod)
NOTE: Energize the following solenoids for the functions:	
S3	Left Angle - Right Cylinder
S4	Right Angle - Left Cylinder
S5	Float
S6	Raise - Lift Cylinder (Base)
S5 & S8	Lower - Lift Cylinder (Rod)
RV	Angle Relief Valve
FC	Variable Flow Control Valve

BLIZZARD® CORPORATION
Calumet, Michigan 49913 **BLZ 1054**

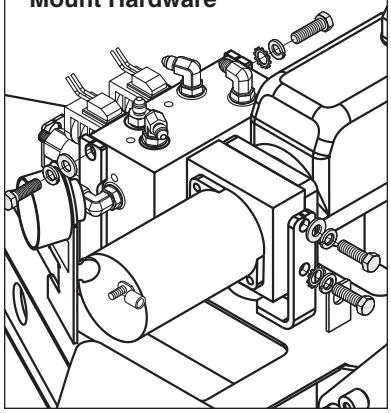


When installing the manifold between the mount brackets on the A-frame, **DO NOT** handle the manifold by the wire lead coils. The solenoid cartridges can bend, causing them to stick when activated. Always carry the manifold by the sides of the aluminum block.

8. Next, align the mount holes on the pump and the manifold with the holes in the brackets located on the A-frame. When installed correctly, the manifold will be located at the front of the A-frame closest to the pivot beam.

⚠ CAUTION: When installing the manifold between the mount brackets on the A-frame, hold the manifold at the sides of the block. Never handle the manifold by the wire lead coils. Doing so can cause a solenoid cartridge to bend, causing the cartridge to stick when activated.

Use Loctite® On All Manifold Mount Hardware



A medium strength threadlocker, such as Loctite® 242®, should be used to properly secure the mount hardware for the pump and manifold. This will help prevent the hardware from working free from vibration and plow use. Apply a liberal amount of threadlocker to all threaded fasteners and the threads in the pump and manifold. Both the pump and manifold receive two 3/8"-16 x 1-1/4" hex cap screws—one on each side of the A-frame and two into the pump.

Secure one 3/8" flat washer, lock washer and 3/8"-16 x 1-1/4" hex head cap screw through the top mount hole in the rear bracket and into the pump. The bottom mount hole receives one 3/8" INTERNAL/EXTERNAL TOOTH LOCK WASHER, 3/8" lock washer and 3/8"-16 x 1-1/4" hex head cap screw. The bottom mount location will serve as the ground for the plow electrical harness. Installation instructions for the harness can be found on page 9. *Note: A medium strength threadlocker, such as Loctite® 242® should be used on the pump and manifold mount fasteners. This will help prevent the fasteners from working free.* Mount the manifold to the side brackets on the A-frame using the hardware provided on the manifold. The passenger's side mount bracket will serve as the ground location for the manifold coil harness. Installation instructions for the coil harness can be found on page 9.

9. Once the pump and manifold assembly is in place, connect the hydraulic hoses to their respective adapters on the manifold. Review the label under the pump cover to identify which hoses connect to each port (See page 7).

   Begin installing the hoses with the lift cylinder hoses. Connect the base end hose (P/N 60293) to port #3. Connect the rod end hose (P/N 60295) to port #4. Next, attach the 90˚ fitting, on the passenger's side angle cylinder hose (P/N 60296), to the male connector adapter on port #2. Route the hose under the pump and over the manifold. Lastly, connect the driver's side angle cylinder hose (P/N 60294) to port #1. Route the hose over the pump to the hydraulic adapter.

10. Hook each EXTENSION SPRING to the receiving holes located on the pivot beam and connect the opposite end of the spring to their respective SPADE BOLTS. Install the 5/8"-11 x 4-3/8" spade bolts through the EXTENSION SPRING MOUNTING ANGLE on the top rear of the blade. Secure each spade bolt by placing one 5/8" flat washer on the bolt and thread one 5/8"-11 nylon insert lock nut. Tighten each lock nut until a piece of paper can pass between the 3th & 4th coils on the spring.

11. Install the flexible BLADE GUIDES at each end of the moldboard. Insert the 5/16"-18 x 1" hex head cap screw through the holes provided at the top of the outside reinforcement rib. Tighten all screws using the nylon insert lock nuts provided.

Congratulations! You have successfully completed half of the installation. Don't quit now, you're nearly out of the garage!

Electrical Assembly - Plow Harness

1. Begin the electrical assembly by connecting the RED POWER WIRE from the PLOW ELECTRICAL HARNESS to the PUMP motor terminal stud using the hardware provided on the pump. *Note: The red power wire contains an end ring terminal too large for the pump motor stud. Remove the end ring terminal from the harness and replace it with the 1/4" DIA. END RING TERMINAL located on the pump motor terminal stud.*

2. Next, remove the bottom bolt, lock washer and internal/external tooth lock washer from the rear pump mount bracket. Route the BLACK GROUND WIRE (from the harness) under the pump on the driver's side of the A-frame. Align the tooth lock washer and end ring terminal over the hole on the bracket and secure them with the lock washer and bolt.

3. The manifold contains a red COIL WIRE HARNESS that must be grounded to the A-frame. Locate the 3/8" end ring terminal on this harness and secure it to the passenger's side manifold mount bracket. Use the existing manifold mount hardware to secure the ground. *Note: The internal/external tooth lock washer provided should install against the mount bracket to provide a solid ground.*

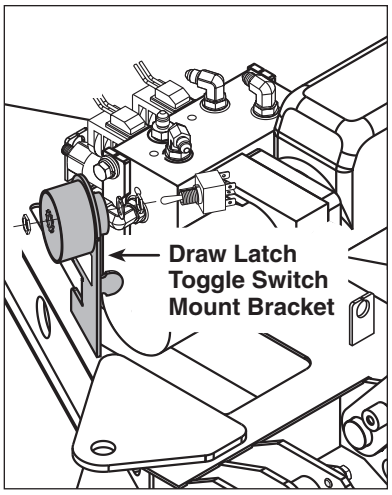
4. Remove the hex jam nut and external tooth lock washer from the POWER HITCH CONNECT/DISCONNECT TOGGLE SWITCH and insert it through the back of the mount bracket on the A-frame. Align the notch in the key washer on the switch to the notch on the bracket. Replace the lock washer and jam nut and tighten until the switch is firmly in place. Next, attach the connector on the plow harness to the switch. *Note: Use caution when making the connection. Switches can break if done forcefully.*

5. Continue the harness installation by connecting the PLASTIC FEMALE ELECTRICAL CONNECTOR on the harness to the PLASTIC MALE ELECTRICAL CONNECTOR found on the coil wire harness.

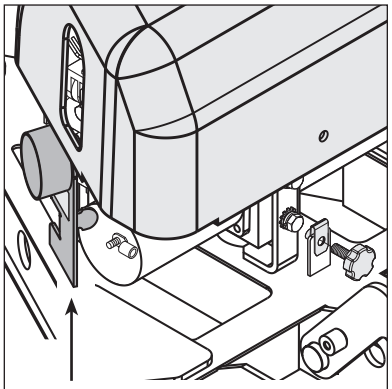
6. Finalize the harness installation by positioning the wire harness braid in the notch on the switch bracket and secure it with a cable tie. *Note: The DIODE LOOP HARNESS should be positioned inside of the pump cover.*

7. Next, place the MOLDED RUBBER POWER CONNECTOR (from the harness) through the hole in the PUMP & MANIFOLD COVER. Position the cover over the protective toggle switch hood. Align the front and rear holes in the cover with the U-NUTS located on the mount tabs. Secure the pump cover with two 3/8"-16 x 1-1/8" CLAMPING KNOBS.

Congratulations! You have just completed building the finest snowplow available! However, the vehicle wire harness still needs to be installed. That is the focus of the second half of the electrical assembly instruction.



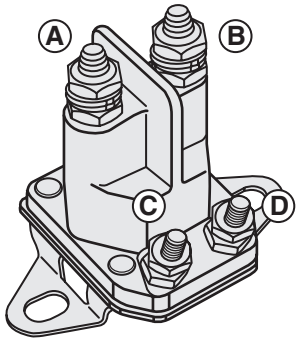
The draw latch toggle switch installs through the rear of the bracket with the protective hood. Align the key washer with the slot cut in the bracket to prevent the switch from turning. Secure the switch with the hardware provided. Note: Use the square notch in the bracket (below the protective hood) to position the braided harness. Use another cable tie to hold the harness against the bracket.



The Pump Cover Installs Over The Top Of The Draw Latch Switch Bracket

To properly secure the pump and manifold cover on the A-frame, position the cover over the top of the protective hood on the draw latch switch mount bracket. Align the holes in the cover with the U-clips on the welded A-frame tabs. Secure the cover using two clamping knobs.

Electrical Assembly - Vehicle Harness



Heavy-Duty Power Contactor (Solenoid)

There are four wires that need to be attached to the power contactor:
(A) Red Power Battery Wire
(B) Vehicle Wire Harness Red Power Wire
(C) 24" Black Ground Wire
(D) Brown/White Pump Solenoid Activation Wire

CAUTION: Always perform the vehicle wire harness assembly with the vehicle off and the keys out of the ignition. Use caution when testing the electrical wires for the vehicle's headlight functions.

1. Begin the installation of the electrical harness under the hood. Insert the WHITE POWER CONNECTOR & RED POWER WIRE (with FUSE) end of the harness through the driver's side fire wall access panel into the vehicle cab. *Note:You may need to widen an opening or cut access to the cab interior to facilitate the assembly.* Loosely position the remaining portion of the harness over the driver's side fender well and place the MOLDED RUBBER POWER CONNECTOR near the bumper. *Note: Keep the plow and vehicle rubber power connector pins lubricated with a liberal amount of dielectric grease. Always replace the protective RUBBER WEATHER CAPS when the plow is disconnected from the vehicle.*

2. Next, attach the POWER CONTACTOR (SOLENOID) to the driver's side wheel well or engine fan guard using two 12-14 x 3/4" hex washer self-drilling screws. *Note: Some model vehicles provide mounting locations for accessory components. Always mount the solenoid with the terminals facing up. This will extend the useful life of the solenoid.* Connect the 24" BLACK GROUND WIRE to either small terminal on the solenoid and attach the opposite end to the vehicle with one hex washer self-drilling screw. Locate the BROWN/WHITE PUMP SOLENOID ACTIVATION WIRE on the wire harness and position the eyelet over the remaining small terminal on the contactor. Secure it with the hardware provided on the solenoid.

3. Proceed to connect the BLACK VEHICLE WIRE HARNESS GROUND WIRE to the negative terminal on the vehicle's battery. Cut the wire to length and crimp a 3/8" DIA. END RING TERMINAL on the wire. It is also recommended that the ring terminal be soldered. *Note: The harness should be secured to the vehicle prior to taking the necessary measurement.* Measure the distance needed for the RED POWER WIRE to reach the solenoid and properly secure an end ring terminal to it. Connect the power wire to either large terminal on the solenoid.

   CAUTION: Do not fasten the wire harness to areas that come in contact with moving engine parts or possess extreme heat. The harness could become tangled and/or melt causing electrical failure and vehicle damage.

4. Attach and solder an end ring terminal to both ends of the remaining length of the red 4 gauge wire. Connect one end of the wire to the open terminal on the solenoid and the remaining end to the positive terminal on the battery.

5. With the vehicle harness secured to the truck, position the MAIN LIGHTING HARNESS such that both of the large, gray VEHICLE HEADLIGHT CONNECTORS are near the truck headlights and the smaller, black PLOW HEADLIGHT CONNECTORS are near the grill of the vehicle.

6. Plug the HEADLIGHT GROUND/RELAY (BLACK & GREEN/YELLOW) CONNECTOR, from the vehicle wire harness, into the connector on the main lighting harness. With the connection made, plug each HEADLIGHT RELAY into the receptacles. Securely mount the receptacles to the vehicle with the terminal wires facing down and the relays facing up. Installing the relays in this position will allow moisture to drain from the relay.

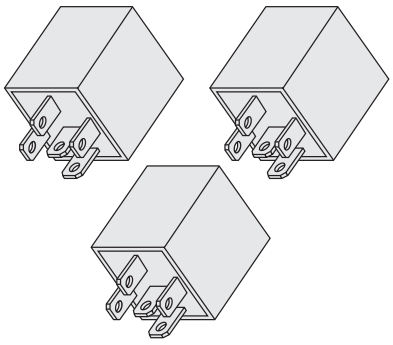
7. Next, remove the front directional light assembly on the driver's side of the vehicle. Feed the VIOLET, turn light wire and GRAY, run light wire from the main lighting harness through the opening in the directional light housing. At this point, use a test light or ohm meter to determine the proper wires in the vehicle's electrical system to splice into. Once you have identified the proper wires, position one end of the turn or run light wire into a SPLICE LOCK CONNECTOR provided. Attach the vehicle wire to the opposite side of the splice lock connector. Complete the splice by pinching both wires together and locking the connector. Repeat the splice procedure for the remaining wire. The passenger's side directional light assembly requires the same installation; however, only one wire, the PINK, turn light, needs to be spliced.

8. Connect the vehicle headlights to the main lighting harness using a HEADLIGHT ADAPTER KIT. Due to differences in the construction of the adapter kits, and the various make and model vehicles Blizzard snowplows are installed on, a headlight adapter kit is not packaged with your snowplow. Contact your local Blizzard dealer to obtain the appropriate adapter for your vehicle.

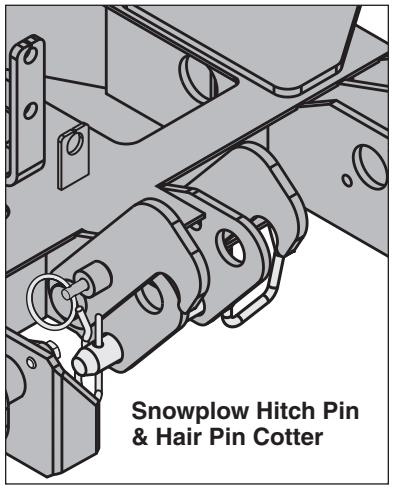
9. Begin the adapter kit installation by removing the existing vehicle headlight connector from the headlight. Attach the HEADLIGHT ADAPTER CONNECTOR to the existing vehicle headlight connector. Next, plug the BLACK, FIVE-PIN CONNECTOR on the headlight adapter into the gray, five-pin connector on the vehicle wire harness. Lastly, plug the HEADLIGHT ADAPTER CONNECTOR into the vehicle headlight receptacle. *Note: If more than one plug is present, match the colors of each connector (ie gray to gray, black to black, Chevrolet daylight running is clear to gray).* Repeat the installation for the opposite headlight.

10. Once the headlight adapter connections are completed, proceed to secure the braided harness to the vehicle. Safely route all harness lengths around the engine components and attach them to the vehicle with cable ties. Extend the PLOW HEADLIGHT CONNECTORS, from the main lighting harness, through the grill of the vehicle and position the HARNESS POWER PLUG and WEATHER CAP near the bumper. Cable tie the power plug to the vehicle bumper or tow hook to keep the harness from hanging too low.

11. Return to the driver's side cab interior to install the remainder of the vehicle wire harness. Connect the RED POWER WIRE (with 15 AMP FUSE) to a switched power source with a minimum of 15 amps. *Note: The red power wire MUST be fused and switched on and off with ignition.* Secure all loose wires under the dash.

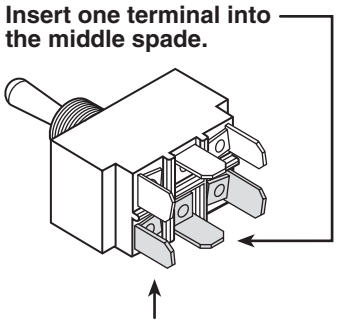


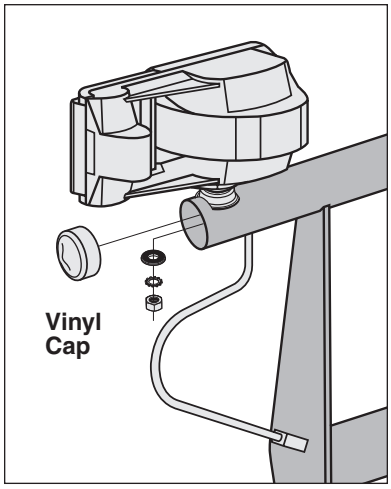
The vehicle wire harness is packaged with three 12V quick connect, sealed headlight relays. The relays install into the black receptacles located on the main lighting harness. Review the diagram on page 28.



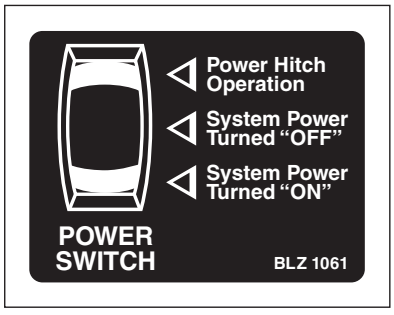
Snowplow Hitch Pin & Hair Pin Cotter

In the event you should lose hydraulic power while snowplowing, raise the snowplow into a pile of snow and insert the emergency hitch pin provided with your plow. The pin will lock the plow in a temporary raised position until proper service can be performed to restore hydraulic power. Note: For clarity, the draw latch is not illustrated.





The black vinyl caps provided with your snowplow install at each end of the light tower. Adjust the plow headlights as desired, secure each with hardware provided and finish the installation by capping the light tower ends.



12. Find an accessible location under the dashboard for the PLOW HEADLIGHT TOGGLE SWITCH & BRACKET. Install the headlight bracket using two self-drilling screws. Insert the toggle switch through the bracket and secure it with the hardware provided. Use the MALE 2-PIN POWER CONNECTOR to connect the toggle switch to the vehicle wire harness.

    First, insert the 24" GREEN/YELLOW GROUND LEAD into the FEMALE 2-PIN POWER CONNECTOR (on the vehicle wire harness). This lead should be grounded to the vehicle. Next, plug both of the SWITCH LEADS into the toggle switch. *Note: Both terminals should be inserted into the spades on the same side of the switch. One terminal should be positioned in the middle spade. See the illustration to the left and on page 32.* Plug both 2-pin power connectors together.

13. Next, install the LIGHT TOWER. Position the tower arms into the receiving pockets located on the undercarriage. Each pocket has a lock pin that secures both light tower arms. Pull out and twist each handle to temporarily unlock the pins. Place the light tower into the pockets and relock the pins. See your local Blizzard dealer for complete installation instructions for your vehicle undercarriage.

14. Proceed to install the PLOW HEADLIGHTS. Align one HEADLIGHT BALL STUD MOUNT ADAPTER on the light tower tube with the mounting hole and insert the threaded stud through each. Secure the headlight with one 1/2" galvanized washer (neoprene facing up), one 7/16" external tooth lock washer and hex nut. *Note: All snowplows are shipped with two BLACK VINYL CAPS that install at either end of the light tower.* Connect the terminals from the plow lights to the terminals on the main lighting harness. Repeat the installation for the opposite headlight.

15. Align the four mount holes on the JOYSTICK CONTROL with the holes located on the JOYSTICK BENCH MOUNT PEDESTAL. *Note: The radius on the pedestal should face the dashboard*. Secure the joystick to the pedestal with four 8-32 x 3/4" machine screws provided. Next, slide the VELCRO® STRAP through the slots cut in the pedestal. The metal D-RING should be located on the side opposite of the radius. Wrap the strap around the bench and fasten. Finally, connect the white power connector from the vehicle wire harness to the connector on the control station. The power switch on the joystick should be in the middle or "OFF" position. See the diagram to the left.

This completes the electrical assembly installation for the vehicle wire harness and main lighting harness. You are now ready to perform all of the test functions on the snowplow.

Testing The Snowplow

1. Fill the HYDRAULIC PUMP FLUID RESERVOIR with BLIZZARD SNOWPLOW RAPID ACTION HYDRAULIC OIL (P/N 63070) until it is approximately 3/4" from the top of the tank. Replace the cap on the reservoir. Proceed to remove the weather caps from each of the plow and vehicle wire harnesses and connect the plugs. Turn the POWER

SWITCH on the joystick (in the cab) to the “ON” position and turn the vehicle ignition switch on. You now have power to the snowplow. Once all of the hydraulic functions have been executed, the system will have been filled with approximately 1-1/2 to 2 quarts of hydraulic oil.

2. To raise the POWER HITCH on the snowplow, turn the power switch on the control station to the up or “ON” position. Push and hold the toggle switch on the A-frame upward into the “CONNECT” position. Notice the action of the fluid in the reservoir. By activating the initial hydraulic function, the fluid begins to fill the system. Push and hold the toggle switch in the “DISCONNECT” position, the Power Hitch will lower. Refill the reservoir until the fluid is 3/4" from the top of the tank.

3. Position the vehicle such that the draw latch is below the push beam and the mounting points on the A-frame are in line with the mounting points on the undercarriage. Pull out the A-FRAME LATCH PIN and rotate the A-FRAME LATCH clockwise until the latch is resting on the DRAW PIN (See diagram on page 14). Move the snowplow in position by activating the draw latch connect switch and release.

   ⚠ **WARNING: Always use caution when operating the draw latch CONNECT/DISCONNECT switch. Keep your hands and feet away from the operation of the draw latch and the main blade. The action of the draw latch moves the snowplow in position for proper attachment to the vehicle. Failure to follow this warning may result in serious injury or death.**

   The Power Hitch will raise until it hits the push beam and the DRAW LATCH FINGERS will pull the plow into the vehicle. The mounting points on the plow and vehicle are now positively aligned. Rotate the A-frame latch counterclockwise until the latch is locked in the raised position. Insert the two HITCH PINS through the mounting holes on the A-frame and secure each with one hair pin cotter. The snowplow is now securely mounted to the vehicle.

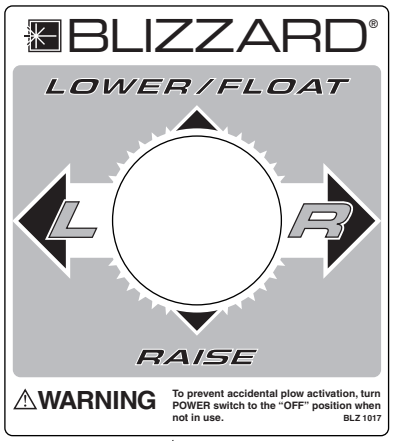
4. Return to the interior of the vehicle. With the plow securely in place, you can now execute the remaining functions of the snowplow. The power supply on the joystick should be in the “ON” position. Next, raise the plow to its maximum height by pulling back (“RAISE”) on the joystick. Angle the snowplow to the left by moving the joystick toward the “L” (left angle) on the label. If the plow function is slow or delayed, the hydraulic fluid is filling the cylinder and replacing the air in the system. Continue testing the remaining joystick functions. Monitor the fluid level in the reservoir and fill to 3/4" from the top of the tank if needed. Also, look for any hydraulic fluid leaks around the manifold, pump, hydraulic hoses and all cylinders.

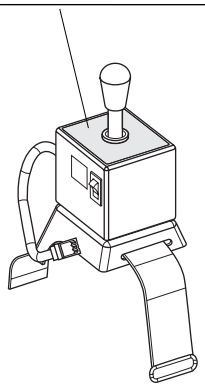
5. Lastly, check that the vehicle and plow headlights are in proper working condition including the turn signals. If necessary, adjust the plow headlight beams with the plow in the raised position.

Congratulations on a successful assembly and installation! Once all of the blade and electrical functions have been tested your Blizzard straight blade is ready for action. Should you need additional support during a plow assembly or undercarriage installation, contact your local authorized Blizzard dealer.

BLIZZARD®
SNOWPLOW
RAPID ACTION
HYDRAULIC OIL
BLIZZARD SNOWPLOW RAPID ACTION HYDRAULIC OIL IS RECOMMENDED FOR USE ON ALL TRUCK MOUNTED SNOWPLOWS USED IN EXTREME COLD WEATHER CONDITIONS. REPLACE HYDRAULIC FLUID ANNUALLY. BLIZZARD PART NUMBER 63070
CAUTION: THIS FLUID CONTAINS A PETROLEUM HYDOCARBON BASE WITH SELECTIVE ADDITIVES. IF ACCIDENTALLY INGESTED, DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION IMMEDIATELY.
MANUFACTURED FOR
BLIZZARD® CORPORATION
CALUMET, MICHIGAN 49913 ■ 1-888-680-8600
NET CONTENTS 1 U.S. QUART (0.946 LITERS)
BLZ 1034

Your Blizzard straight blade snowplow will use approximately 1-1/2 to 2 quarts of Blizzard Rapid Action Hydraulic Oil. Blizzard hydraulic oil is also available by the case (P/N 63071), gallon (P/N 63072) or gallon case (P/N 63069). See your local authorized Blizzard dealer for price and availability.





Power Hitch™ Instruction

Prior to operating your straight blade, review the Mounting & Dismounting Instructions label at the driver's side rear of the moldboard (shown below).

POWER HITCH™

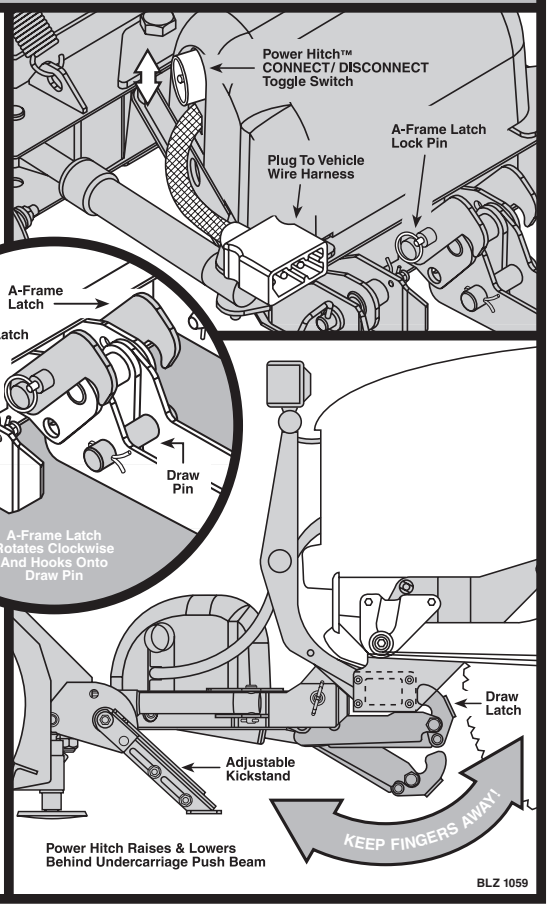
MOUNTING & DISMOUNTING INSTRUCTIONS

MOUNTING

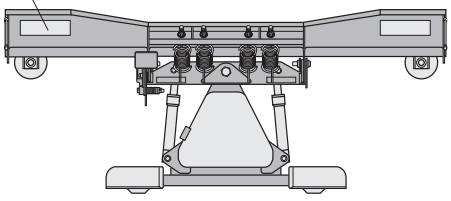
1. Position vehicle close to the plow and align mounting points on the undercarriage and A-frame. Verify that the plow kickstand is in the lowered position. Turn vehicle ignition off.
2. Turn power supply switch on the main plow control unit in the vehicle to the "OFF" position.
3. Remove protective weather caps and make electrical connection at the plow and vehicle.
4. Turn the vehicle ignition, and the power supply switch on the control unit, to the "ON" position. Pull the A-frame latch lock pin outward and verify that the A-frame latch lowers over the draw pin.
5. Activate the Power Hitch on the A-frame by pushing and holding the "CONNECT/ DISCONNECT" switch (on the pump cover housing) upward. **CAUTION: Keep fingers away from plow and truck mounting points. Power Hitch will automatically pull the plow into the receiving points on the truck when activated.** Insert both hitch pins through the positively aligned holes on the plow and undercarriage and secure each with a hair pin cotter.
6. With the plow securely mounted, slightly lower the Power Hitch to relieve tension on the A-frame latch, pull the latch lock pin and raise the A-frame latch until it locks into position. Raise the Power Hitch and verify that the draw latch is fully engaged behind the push beam on the vehicle. Rotate the kickstand counterclockwise until it locks into place. The plow is now properly mounted and ready to operate.

DISMOUNTING

1. Lower the plow on a flat, level surface to dismount. Turn vehicle ignition off.
2. Pull the kickstand lock pin outward and rotate the kickstand clockwise. Release the pin to lock kickstand in place. Remove both hitch pins from the A-frame and undercarriage.
3. Turn the vehicle ignition and the power supply switch on the control unit to the "ON" position. Activate the Power Hitch by pushing and holding the "CONNECT/DISCONNECT" switch downward. **CAUTION: Keep fingers away from plow and truck mounting points.** Verify that the draw latch is fully disengaged from behind the push beam on the vehicle.
4. Turn power supply switch on the main plow control unit in the vehicle to the "OFF" position.
5. Disconnect electrical cords at the plow and vehicle. Replace protective weather caps.


Power Hitch™ CONNECT/ DISCONNECT Toggle Switch
A-Frame Latch Lock Pin
Plug To Vehicle Wire Harness
A-Frame Latch
A-Frame Latch Lock Pin
Draw Pin
A-Frame Latch Rotates Clockwise And Hooks Onto Draw Pin
Draw Latch
Adjustable Kickstand
KEEP FINGERS AWAY!
Power Hitch Raises & Lowers Behind Undercarriage Push Beam
BLZ 1059

Should the Mounting & Dismounting Instructions label or any of the labels that came with your snowplow become hard to read or wear off, contact your local authorized Blizzard dealer for replacements.



Notes

Maintenance Schedule	
Maintenance Performed	Date

Regular Maintenance

Your Blizzard straight blade snowplow has been designed for years of rugged, dependable service with low maintenance. To ensure proper working condition, follow the maintenance guidelines below and on the next page.

CAUTION: Always follow the maintenance guidelines in a timely fashion. Failure to observe maintenance guidelines may result in poor snowplow operation, increased component wear or possibly lead to part failure.

Routinely inspect the following items – perform maintenance as needed:

1. All fasteners, pins, nuts and bolts for tightness. See the recommended maximum bolt torque chart on page 33.

2. All hydraulic hoses and hydraulic hose adapters for wear and leaks. See the recommended hydraulic adapter torque values on page 33.

3. All cylinders for leaks; inspect rod ends for corrosion and pitting.

4. Cutting edges and plow shoes for wear. Do not discard plow shoe washers. These should be retained for different shoe adjustments.

5. Clean and lubricate all electrical plugs, headlight connections, ground and battery cables, solenoid connections and switch connections to prevent corrosion. Apply dielectric grease for every 25 hours of snowplow use. You may need to grease more frequently depending on your plowing environment.

6. Lubricate all pins and bushings to prevent corrosion and to maintain consistent operation, including the A-frame latch. A NLGI Grade 2 multipurpose lithium complex grease with molybdenum (MPGM) is recommended for lubrication.

7. Clean and cover deep scratches or exposed metal with Blizzard Snowplow white (P/N 61219) or black (P/N 63073) touch-up paint. Contact your local Blizzard Dealer for availability.

8. Check the hydraulic oil level in the hydraulic pump fluid reservoir. Fill the fluid to within 3/4" from the top of the reservoir. Do not exceed this level. Never mix different types of fluids. Contact your local dealer for replacement Blizzard Snowplow Rapid Action Hydraulic Oil (P/N 63070).

9. Check the trip spring adjustment. Properly adjusted tension will allow a sheet of paper to pass between the 3rd and 4th coils of the spring.

10. To adjust the snowplow drop speed, use the variable flow control valve (FC) on the manifold (see label under pump & manifold cover). Turn the dial on the valve clockwise to decrease the drop speed. Turn the dial counterclockwise to increase the drop speed. See the Troubleshooting Guide on page 35 for additional instructions.

11. Do not allow snow and ice to build-up on the pump and manifold cover. Excessive build-up may cause bumper damage when the plow is raised.

Storing Your Snowplow

Placing Your Plow In Storage

1. Position your plow on a flat, level surface for storage. Follow the dismounting procedure illustrated on page 14.

2. Pressure wash and dry the entire snowplow prior to placing in storage.

3. Apply a liberal amount of dielectric grease to all electrical plugs and connections. Clean and install all dust caps.

4. Lubricate all exposed hydraulic cylinder rod ends with liquid white lithium grease to prevent corrosion.

5. Lubricate all pins and bushings to prevent corrosion and to maintain consistent operation, including the A-frame latch. A NLGI Grade 2 multipurpose lithium complex grease with molybdenum (MPGM) is recommended for lubrication.

6. Clean and cover deep scratches or exposed metal with Blizzard Snowplow white (P/N 61219) or black (P/N 63073) touch-up paint. Contact your local Blizzard dealer for availability.

7. Remove and properly discard the fluid from the pump reservoir. Clean the pump filter and replace the hydraulic oil to within 3/4" from the top of the reservoir. Changing the fluid annually will prolong the life of your pump and manifold. Never mix different types of hydraulic oil. Contact your local dealer for replacement Blizzard Snowplow Rapid Action Hydraulic Oil (P/N 63070).

8. Cover the snowplow with a tarp if stored outside. This will protect your plow from sun fading and inclement weather which can lead to accelerated corrosion.

Removing Your Plow From Storage

1. Perform all regular maintenance indicated on the previous page.

2. If you have not replaced the hydraulic oil in the pump reservoir, it is strongly encouraged that you do so prior to operating your plow. Prolonged storage could result in condensation build-up.

3. Follow the mounting procedure illustrated on page 14.

4. Once the plow has been properly mounted to the vehicle and all electrical connections have been made, initiate all of the functions of the snowplow. Monitor the fluid level in the reservoir and fill to 3/4" from the top of the tank if needed.

5. Adjust the snowplow headlights as needed.

Annual Fluid Replacement	
Type & Quantity of Fluid Replaced	Date

Plow Specifications

Moldboard
- *Length*
  - 680LT .....6'-8"
  - 720LT .....7'-2"
- *Thickness* .....16 Gauge
- *Height*
  - 680LT .....21-1/2"
  - 720LT .....23-1/2"
- *Reinforcement* .....4 Ribs @ 3/16"
- *Cutting Edge* .....1/4" x 5" (1080)
- *Finish* .....Powder Coat - White

Trip Mechanism
- *Trip Spring Type* .....(4) 5/16" Hooked Extension
- *Trip Spring Adjustment* .....5/8"-11 x 4-3/8" Spade Bolts

A-frame
- *Material* .....Rec. Tube & Channel Type
- *Hitch Pins*.....3/4" x 6" Yellow Zinc
- *Finish*.....Powder Coat - Black

Pump
- *Construction*.....Steel Housing w/Clear Plastic Tank
- *Type* .....Internal Gear Pump
- *Size* .....0.7 cc
- *Motor* .....12V Starter
- *Volume Per Minute* .....0.8 GPM @ 1500 PSI
- *Weight* .....9.2 lb.
- *Mount* .....A-frame Install w/Hex Head Screws
- *Reservoir Capacity* .....1.2 quarts
- *Controls* .....Toggle Switch & Joystick

Manifold
- *Construction* .....Red Anodized Aluminum
- *Ports*.....4
- *Cartridge Valves*.....5
- *Relief Valve* 1
- *Flow Control Valve* 1
- *Weight* .....13.3 lb.
- *Mount* .....A-frame Install w/Hex Head Screws
- *Maximum Flow Capacity*.....2.0 gpm

Angle Cylinders
- *Stroke* .....7-5/16"
- *Ram Diameter*.....1-1/4"
- *Bore Diameter*.....1-1/2"

Lower/Raise Cylinder
- *Stroke* .....4-5/8"
- *Ram Diameter*.....1"
- *Bore Diameter*.....1-3/4"

Plow Headlights
- *Type* .....Low Profile w/Turn Signals
- *Measurements* .....12" W x 5"H x 5-1/4"D
- *Housing* .....Plastic Composite
- *Mount* .....Adjustable Ball Type
- *Bulb Type*.....High/Low Sealed Beam Halogen, 12V Rectangular
- *Switch Type* .....Dash Mount, Toggle

Miscellaneous
- *Plow Weight**
  - 680LT .....Approx. 355 lb.
  - 720LT .....Approx. 370 lb.
- *Amperage Draw***.....Approx. 65A
- *Adjustable Plow Shoes*.....(2) Standard
- *Mount Mechanism*.....Hydraulic Power Hitch
- *Control Station*.....Joystick or Touch Pad

*Plow weight does not include vehicle undercarriage.

**Amperage draw specifications are based on the snowplow lift operation, at a shop temperature of 65˚F, using Blizzard Snowplow Rapid Action Hydraulic Oil. Amperage will vary with temperature, oil viscosity and meter accuracy. Deadheading a plow function will result in significantly increased amperage.

Unless otherwise indicated, all specifications are for the Model 680LT & 720LT straight blade snowplows.

Blizzard Corporation reserves the right, under its Continuous Improvement Policy, to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications.

MODELS 680LT & 720LT PARTS LIST

Ref. No.	Part No.	Build Quantity 680LT	Build Quantity 720LT	Part Description
				Moldboard Assembly Parts
1	81061	1	N/A	Moldboard Weldment - Model 680LT
	81067	N/A	1	Moldboard Weldment - Model 720LT
2	81062	1	N/A	Cutting Edge, Moldboard (1080) - Model 680LT
	81073	N/A	1	Cutting Edge, Moldboard (1080) - Model 720LT
3	61196	6	6	Bolt, Carriage, 1/2"-13 x 1-1/2" Grade 8 P
4	61365	6	6	Nut, Flanged Lock, 1/2"-13 Z
5A	**61098**	**2**	**2**	**Plow Shoe Assembly, Standard (7-3/4" Shaft): (1) - 5 & 7, (18) - 6**
5	61102	2	2	Spacer, 1-5/8" O.D, 1-1/8" I.D. x 1-1/2" YZ
6	61101	36	36	Washer, Flat, 1", 1-3/4" O.D., 1-1/16" I.D. YZ
7	61103	2	2	Pin, Linch, 7/16" x 1-3/4" YZ
8A	**61049**	**2**	**2**	**Plow Guide Assembly: (2) - 8 & 9**
8	61051	4	4	Screw, Hex Head Cap, 5/16"-18 x 1" Grade 5 Z
9	61052	4	4	Nut, Nylon Insert Lock, 5/16"-18 Z
10	63102	1	N/A	Decal, Passenger's Side Moldboard (BLZ 1057) - Model 680LT
	63110	N/A	1	Decal, Passenger's Side Moldboard (BLZ 1065) - Model 720LT
11	63105	1	1	Label, WARNING! (BLZ 1060)
12	61175	1	1	Decal, Center Moldboard (BLZ 1018)
13	63104	1	1	Label, Power Hitch™ Mounting & Dismounting Instructions (BLZ 1059)
14	63103	1	N/A	Decal, Driver's Side Moldboard (BLZ 1058) - Model 680LT
	63111	N/A	1	Decal, Driver's Side Moldboard (BLZ 1066) - Model 720LT
15	63063	1	1	Label, Serial Number, Sequentially Numbered (BLZ 1049)
16	61188	4	4	Nut, Nylon Insert Lock, 5/8"-11 Type NE
17	61064	4	4	Washer, SAE Mil-Carb High-Strength, 5/8", 1-5/16" O.D., 21/32" I.D. YZ
18	61201	4	4	Bolt, Spade, 5/8"-11 x 4-3/8" Grade 8 Z
19	61435	4	4	Spring, Extension, 6-7/8" O.A.L. x 2-3/4" O.D., 5/16" Wire Diameter
				Pivot Beam & A-frame Assembly Parts
20	83017	1	1	Pivot Beam Weldment
21A	**41039**	**1**	**1**	**Kickstand Assembly: (1) - 21-23, 27, 28, (2) - 25, 26, (3) - 24**
21	61152	1	1	Screw, Hex Head Cap, 1/2"-13 x 4-1/2" Grade 8 YZ
22	41038	1	1	Kickstand Leg Weldment
23	41047	1	1	Kickstand Foot Weldment
24	61020	3	3	Nut, Top Lock, 1/2"-13 Grade C Z
25	61026	2	2	Washer, SAE Mil-Carb High-Strength, 1/2", 1-1/16" O.D., 17/32" I.D. YZ
26	61057	2	2	Screw, Hex Head Cap, 1/2"-13 x 1-1/4" Grade 8 YZ
27	61293	1	1	Spring, Compression, 2" O.A.L. x 1.101" O.D., 0.207 Wire Diameter
28	41037	1	1	Bushing, Stepped, 1.13" O.D., 0.53" I.D. x 3/8", Stainless Steel
29	50069	6	6	Pin, Clevis, 3/4" DIA. x 3" YZ
30	61357	8	8	Pin, Cotter, 1/4" x 1-1/2" Z
31	61434	1	1	Screw, Hex Head Cap, 1"-8 x 6" (with 4-3/4" Shank) Grade 8 P
32	61008	1	1	Nut, Top Lock, 1"-8 Grade C Z
33	60277	2	2	Hydraulic Cylinder, Plow Angle
34	60294	1	1	Hydraulic Hose (Port #1), 1/4" x 15" - Plow Angle Right (Left Cylinder)
35	60296	1	1	Hydraulic Hose (Port #2), 90˚/Straight, 1/4" x 20" - Plow Angle Left (Right Cylinder)
36	60004	3	3	Hydraulic Adapter, 7/16"-20 x 7/16"-20 Male O.R.B. Connector
37	60254	1	1	Hydraulic Cylinder, Plow Raise/Lower
38	82061	1	1	Pin, Clevis, 5/8" DIA. x 5-3/4" YZ
39	60293	1	1	Hydraulic Hose (Port #3), 1/4" x 10" - Plow Raise/Lower, Extend (Base End)
40	60008	1	1	Hydraulic Adapter, 7/16"-20 x 7/16"-20 90˚ O.R.B. Adjustable Elbow
41	60295	1	1	Hydraulic Hose (Port #4), 1/4" x 18" - Plow Raise/Lower, Retract (Rod End)
42	61438	2	2	Knob, Clamping, 3/8"-16 x 1-1/8"
43	61275	2	2	U-Nut, 3/8"-16
44	62038	1	2	Switch, Toggle, DPDT, (On)-Off-(On), 16 Amps, 115V AC - Draw Latch Connect/Disconnect
45A	**82079**	**1**	**1**	**A-frame Assembly: (1) - 45, 48-50, 54, (2) - 53, (4) - 51 & 52**
45	82078	1	1	A-frame Weldment
46	61426	3	3	Pin, Hitch, 3/4" x 6" YZ
47	61105	3	3	Pin, Hair Cotter, 9/64" DIA. x 2-11/16" Z
48	40079	3	3	Pin, A-frame Latch, 3/8" DIA. x 1-3/4", Stainless Steel
49	61000	3	3	Spring, Compression, 0.94" O.A.F.L. x 0.36" O.D., 0.029" Wire Diameter, Stainless Steel
50	61309	3	3	Ring, Standard Split, 1-1/4" O.D., 1-1/16" I.D., Stainless Steel
51	61433	4	4	Screw, Hex Head Cap, 5/16"-18 x 5/8" Grade 8 YZ
52	61011	6	6	Washer, Split Lock, 5/16" YZ High-Alloy
53	40126	2	2	Bushing, A-frame Pivot, Replaceable
54	61295	1	1	Label, Power Hitch Connect/Disconnect Switch (BLZ 1037)

Note: The reference numbers listed identify parts shown in the illustrations on pages 22-24. These numbers are specific to these illustrations only and do not correspond with other diagrams in the manual. Always review the part number given for proper component identification.

MODELS 680LT & 720LT PARTS LIST

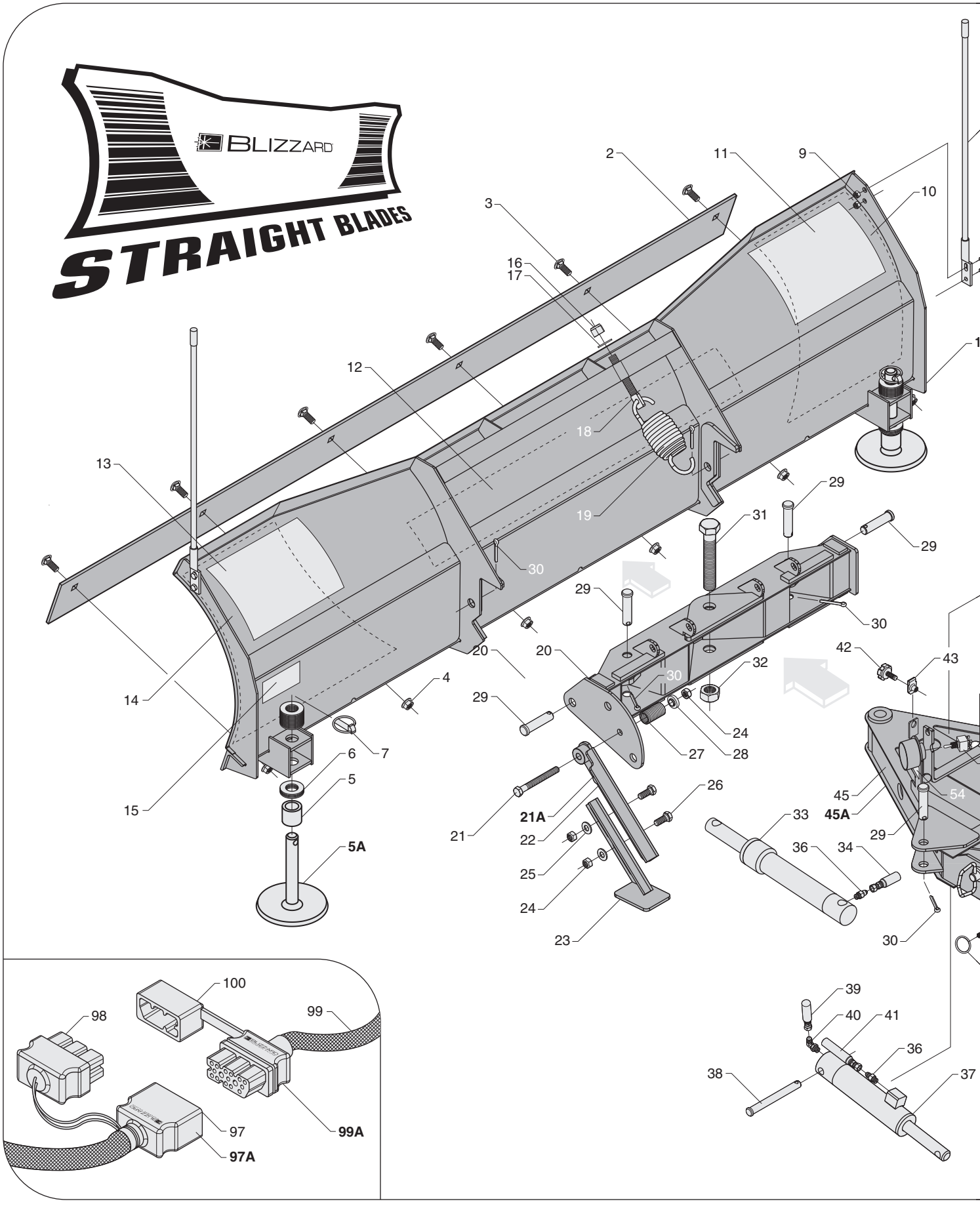
Ref. No.	Part No.	Build Quantity 680LT	Build Quantity 720LT	Part Description
				Draw Latch Assembly Parts
55A	**82087**	**1**	**1**	**Draw Latch Assembly: (1) - 30, 56, 58, 59, 61-68, (2) - 55, 60, (3) - 57**
55	82084	2	2	Outer Draw Latch Plate Weldment, Driver's & Passenger's Sides
56	82101	1	1	Pin, Draw, 1" DIA. x 4-1/4" (with 13/64" DIA. Cotter Pin Hole) YZ
57	61363	3	3	Pin, Cotter, 3/16" x 2-1/2" Z
58	61308	1	1	Screw, Hex Head Cap, 3/4"-10 x 3-1/2" Grade 8 YZ
59	82055	1	1	Pin, Clevis, 3/4" DIA. x 3-7/16" BZ
60	82088	2	1	Inner Draw Latch Plate
61	82095	1	1	Pin, Draw Latch Mount (To A-frame), 1" x 3-1/4" (with 13/64" DIA. Cotter Pin Hole) BZ
62	82092	1	1	Draw Latch Arm Weldment
63	82091	1	1	Draw Latch Finger Weldment
64	82096	1	1	Pin, Inner Draw Latch Plate/Hydraulic Cylinder Rod End, Plow Raise/Lower, 5/8" x 2-1/16" BZ
65	82097	1	1	Pin, Draw Latch Arm Pivot, 3/4" x 2-1/16" BZ
66	40093	1	1	Bushing, 1-1/4" O.D., 1-1/16" I.D. x 1-1/2" YZ
67	40116	1	1	Spacer, 1" O.D., 25/32" I.D. x 5/8" YZ
68	61006	1	1	Nut, Top Lock, 3/4"-10 Grade C Z
				Hydraulic Pump & Manifold Assembly Parts
69	61010	2	2	Screw, Hex Head Cap, 5/16"-18 x 3-3/4" Grade 8 YZ
70	61412	4	4	Washer, SAE Mil-Carb, High-Strength, 5/16", 11/16" O.D., 11/32" I.D., YZ
71	61214	4	4	Screw, Hex Head Cap, 3/8"-16 x 1-1/4" Grade 8 YZ
72	61222	4	4	Washer, Split Lock, 3/8" YZ High-Alloy
73	61016	2	2	Washer, SAE Mil-Carb, High-Strength, 3/8", 13/16" O.D., 13/32" I.D., YZ
74	61307	2	2	Washer, Internal/External Tooth Lock, 3/8" Z
75A	**60270**	**1**	**1**	**Manifold Assembly: (1) - 75, 77, 79, 80, 84, 85, 87-89, (2) - 78, 81, (3) - 76, (5) - 83**
75	60269	1	1	Manifold Block (with Cross Port Relief), Red Anodized Aluminum
76	60287	3	3	Hydraulic Adapter, 7/16"-20 x 9/16"-18 90˚ O.R.B. Adjustable Elbow
77	60003	1	1	Hydraulic Adapter, 7/16"-20 x 9/16"-18 Male O.R.B. Connector
78	60050	2	2	Plug, -6 SAE Hollow Hex (61010007)
79	60005	1	1	Hydraulic Adapter, 9/16"-18 x 9/16"-18 90˚ O.R.B. Adjustable Elbow
80	60288	1	1	Test Port Coupling, Nipple, 9/16"-18
81	60167	2	2	Valve, Spool, Four-Way, Two Position C.C. (86020197 w/o screen)
82A	**62148**	**1**	**1**	**Coil Harness Assembly: (1) - 86, 62045, 62117, (4) - 82, (5) - 62096, 62097 & 62116**
N/A	62045	1	1	Connector, Electric, Male, Plastic
N/A	62096	15	15	Seal, Cable, Silicone, Orange (18 AWG)
N/A	62097	5	5	Terminal, Male (18-16 AWG)
N/A	62116	5	5	Silicone Cavity Plug, White (18-16 AWG)
N/A	62117	1	1	Terminal, End Ring, 3/8" I.D. Copper, 8 Gauge
82	62114	4	4	Coil, PDL 10V DC
83	60052	5	5	Nut, Hex Jam, 1/2"- 20 YZ
84	60168	1	1	Valve, Relief, 3000 PSI (85020340)
85	60170	1	1	Valve, Spool, Three-Way, Two Position (85002279 w/o screen)
86	62115	1	1	Coil, DDL 10V DC
87	60166	1	1	Valve, Spool, Three-Way, Two Position (86020195 w/o screen)
88	60169	1	1	Valve, Flow Control (85002054)
89	60165	1	1	Valve, N.C., Two-Way (86020190)
90	60038	2	2	O-ring, 3/ 32" C.S.W., 9/16" I.D., 3/4" O.D. Neoprene, 70 Durometer
91A	**60282**	**1**	**1**	**Hydraulic Pump Assembly, 12 VDC Power Unit (MTE - 85203132): (1) - 91-93, 60305, 60306, 60307 & 60308**
91	60285	1	1	Reservoir Cap, Hydraulic Pump (MTE - 12501176)
92	60284	1	1	Reservoir, 1.2 Quart, Hydraulic Pump (MTE - 32301360)
93	60283	1	1	Motor, 12 VDC, Hydraulic Pump (MTE - 39200485)
N/A	60305	1	1	Pump Assembly, (MTE - 21507048)
N/A	60306	1	1	Kit, Seal, Includes: Shaft Oil Seal, Pump O-Ring & Reservoir O-Ring, (MTE - 10901313)
N/A	60307	1	1	Inlet Filter (MTE - 37201027)
N/A	60308	1	1	Coupling (MTE - 37901019)
94	62160	1	1	Terminal, End Ring, 1/4" I.D., 4 Gauge, Z
95	82100	1	1	Cover, Hydraulic Pump & Manifold, 1/4" Polyethylene
96	63099	1	1	Label, Hydraulic Hose Identification Guide (BLZ 1054)
				Snowplow Wire Harness Assembly Parts
97A	**62039**	**1**	**1**	**Wire Harness Assembly, Plow: (1) - 97, 98, 62006, 62046 & 62167, (10) - 62093**
97	62057	1	1	Wire Harness, Plow
98	62001	1	1	Weather Cap, Rubber, Plow Wire Harness
N/A	62046	1	1	Connector, Electric, Female, Plastic
N/A	62093	10	10	Terminal, Female (18-16 AWG)
N/A	62167	1	1	Harness, Diode Loop

MODELS 680LT & 720LT PARTS LIST

Ref. No.	Part No.	Build Quantity 680LT	Build Quantity 720LT	Part Description
				Vehicle Wire Harness Assembly Parts
99A	**62149**	**1**	**1**	**Wire Harness Assembly, Vehicle - Triple Relay Ver: (1) - 99, 100, 62124, 62151, 62056, (3) - 61031, 62016, 62144, (4) - 62072**
99	62150	1	1	Wire Harness, Vehicle - Triple Relay Version
100	62000	1	1	Weather Cap, Rubber, Vehicle Wire Harness
N/A	62124	1	1	Fuse, 1/4" DIA. x 1-1/4" BUSS AGC 15A, 32V
N/A	62151	1	1	Main Lighting Harness - Triple Relay Version
N/A	62035	2	2	Weather Cap, Rubber, Main Lighting Harness
N/A	62144	3	3	Headlight Relay, CB1-D-12V, Standard Quick Connect w/Diode Inside
N/A	62042	1	1	Power Contactor (Solenoid), 12V Continuous, High Performance DC, Plastic
N/A	61228	4	4	Nut, Hex Jam, 5/16"-24 Z
N/A	61229	4	4	Nut, Hex Full, #10-32 Z
N/A	61230	2	2	Washer, Split Lock, #10 Z Medium
N/A	62056	1	1	Ground Wire, Power Contactor, 24"
N/A	62072	4	4	Terminal, End Ring, 3/8" I.D. Copper, 4 Gauge
N/A	62008	1	1	Fuse Clip, Mini
N/A	62009	1	1	Fuse Clip, Auto Blade
N/A	62016	3	3	Connector, Splice Lock (18-14 AWG)
N/A	62126	1	1	Ground Lead (Green/Yellow Wire), 24" with #10 Ring Terminal
N/A	62127	1	1	Switch Lead, On/Off Plow Light (Green/Yellow Wires), 24" with Two 1/4" Receptacles
N/A	62024	1	1	Switch,Toggle, DPDT, On-On, 20 Amps, 125V AC - Plow/Vehicle Headlights
101	61041	1	1	Bracket, Plow/Vehicle Headlight Toggle Switch
102	61088	1	1	Label, Plow/Vehicle Headlight Toggle Switch Bracket (BLZ 1008)
103	61031	5	5	Screw, Hex Washer Self-Drilling, 12-14 x 3/4"
104A	**61106**	**2**	**2**	**Headlight Assembly, Plow (Specify Driver's or Passenger's Side): (1) - 104/105, 106-110 & 62061**
104	61107	1	1	Headlight, Plow, Driver's Side
105	61108	1	1	Headlight, Plow, Passenger's Side
106	62032	2	2	Wire Harness (with 5-pin plug), Plow Headlight
N/A	62061	2	2	Bulb, Sealed Beam Halogen, Glass, Plow Headlight (H6545/H4666)
N/A	62062	1	1	Corrosion Preventive Compound (2 fl. oz.)
107	61231	2	2	Adapter, Ball Stud Mount, Headlight
108	61550	2	2	Washer, Neoprene Backing, 1/2" I.D., 1" O.D., Galvanized
109	61112	2	2	Washer, External Tooth Lock, 7/16" YZ
110	61111	2	2	Nut, Hex, 7/16"-14 Grade 8 YZ
111	61427	2	2	Cap, 2-1/4" I.D., 2-3/8" O.D. x 3/4", Black Vinyl
112	39054	1	1	Light Tower
113A	**62073**	**1**	**1**	**Control Station Assembly, Joystick: (1) - 113-115**
113	62074	1	1	Control Station, Joystick
114	61174	1	1	Label, Control Station, Joystick (BLZ 1017)
115	63106	1	1	Label, Plow Power Switch, On/Off (BLZ 1061)
116	61185	1	1	Base Plate, 1/8" ABS Plastic, Joystick Control Station
117	61127	1	1	Strap (Velcro® with 2" Metal D-Ring), Black, 61"
118	61254	4	4	Screw, Pan Head Machine, 8-32 x 3/4" Z
119	30153	1	1	Undercarriage Weldment, 1997-Current, Chevrolet S-10
120	61128	1	1	Decal, Undercarriage Push Beam, 1-1/2" x 9-1/4" (BLZ 1004)
				Miscellaneous Assembly Parts
N/A	61454	1	1	Kit, Hardware, Snowplow Assembly Parts: (1) - 38, 73, 74, (2) - 42, 71, 72, (4) - 16-18, (6) - 29, (7) - 30
N/A	60299	1	1	Kit, Hydraulic Adapter: (1) - 40 & 77, (3) - 36 & 76
N/A	60318	1	1	Kit, Hydraulic Hose: (1) - 34, 35, 39, 41
N/A	61457	1	1	Kit, Hardware, Moldboard Cutting Edge - Models 680LT & 720LT: (6) - 3 & 4
N/A	61458	1	N/A	Cutting Edge (with Hardware Kit), Moldboard - Model 680LT: (1) - 2 (81062), 61457
N/A	61531	N/A	1	Cutting Edge (with Hardware Kit), Moldboard - Model 720LT: (1) - 2 (81073), 61457

BLIZZARD

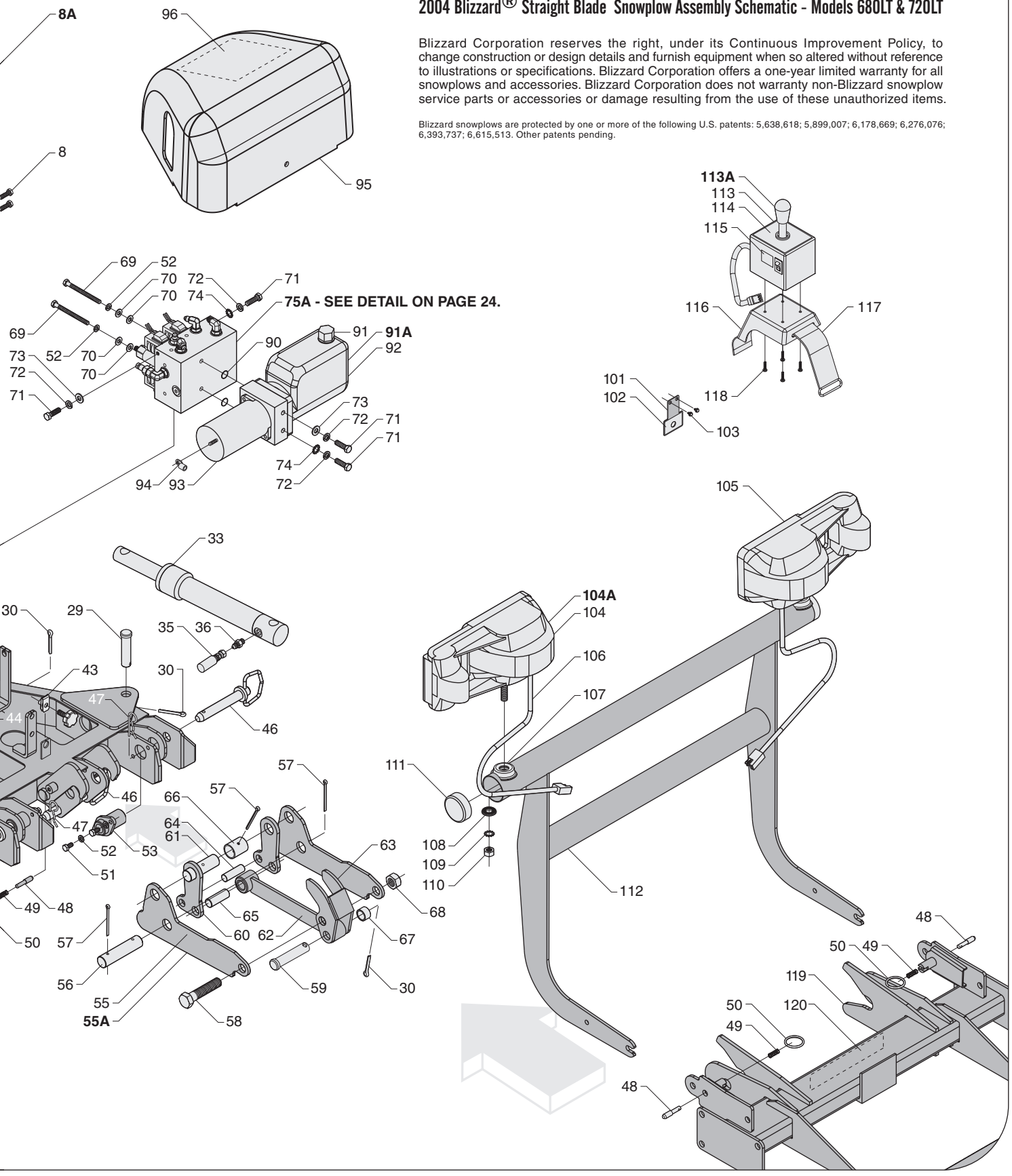
STRAIGHT BLADES

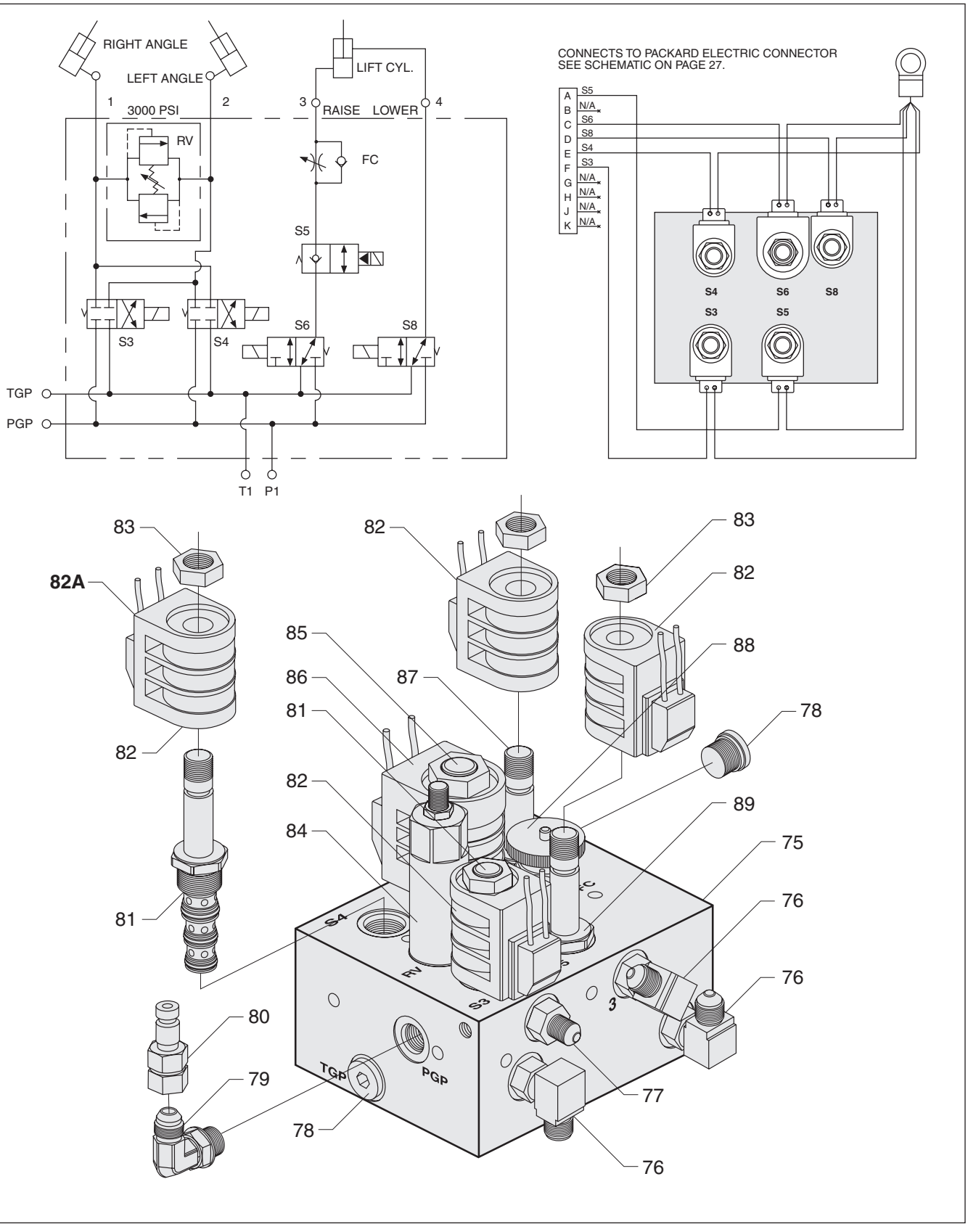


2004 Blizzard® Straight Blade Snowplow Assembly Schematic - Models 680LT & 720LT

Blizzard Corporation reserves the right, under its Continuous Improvement Policy, to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications. Blizzard Corporation offers a one-year limited warranty for all snowplows and accessories. Blizzard Corporation does not warranty non-Blizzard snowplow service parts or accessories or damage resulting from the use of these unauthorized items.

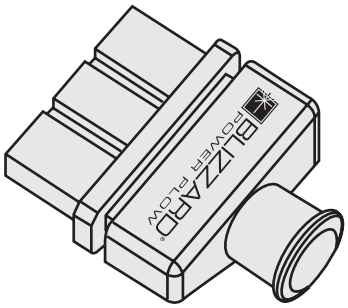
Blizzard snowplows are protected by one or more of the following U.S. patents: 5,638,618; 5,899,007; 6,178,669; 6,276,076; 6,393,737; 6,615,513. Other patents pending.

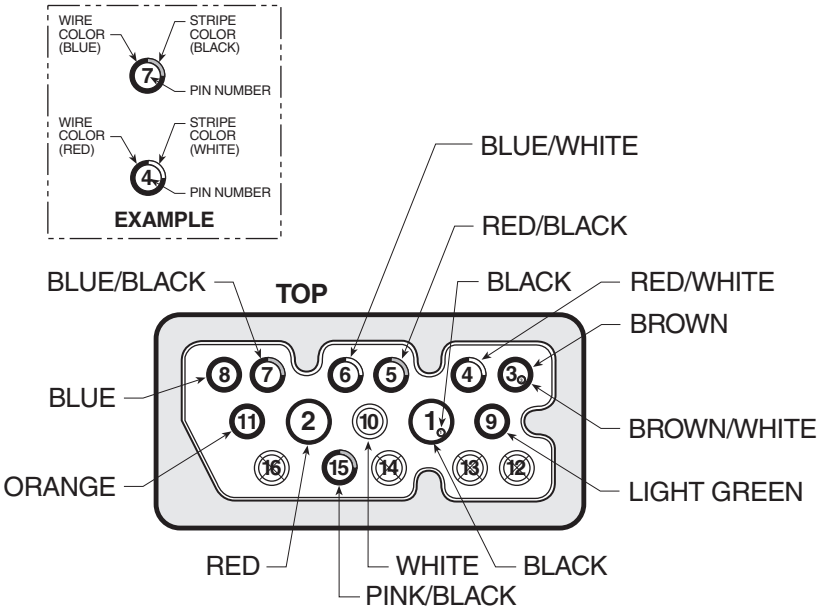



RIGHT ANGLE
LEFT ANGLE
LIFT CYL.
1
3000 PSI
2
3
RAISE
LOWER
4
RV
FC
S5
S3
S4
S6
S8
TGP
PGP
T1
P1
CONNECTS TO PACKARD ELECTRIC CONNECTOR
SEE SCHEMATIC ON PAGE 27.
A S5
B N/A
C S6
D S8
E S4
F S3
G N/A
H N/A
J N/A
K N/A
S4
S6
S8
S3
S5
83
82A
82
85
86
87
81
82
84
88
78
89
75
76
80
79
77
FC
RV
S3
S4
TGP
PGP
3

BLIZZARD HARNESS PLUG (VEHICLE)
UNIVERSAL 14 + 2 MOLD

PIN NO.	COLOR	FUNCTION	AWG
1	BLACK	GROUND	4
	BLACK	GROUND	18
2	RED	12 VOLT DC (+)	4
3	BROWN/WHITE	PUMP SOLENOID TO RING	18
	BROWN	PUMP SOLENOID TO MOLEX	18
4	RED/WHITE	RIGHT SLIDE BOX EXTEND	18
5	RED/BLACK	RIGHT SLIDE BOX RETRACT	18
6	BLUE/WHITE	LEFT SLIDE BOX EXTEND	18
7	BLUE/BLACK	LEFT SLIDE BOX RETRACT	18
8	BLUE	LEFT ANGLE	18
9	LT. GREEN	RIGHT ANGLE	18
10	WHITE	LIFT	18
11	ORANGE	FLOAT	18
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	PINK/BLACK	12 (+) VDC FUSED	18
16	N/A	N/A	18

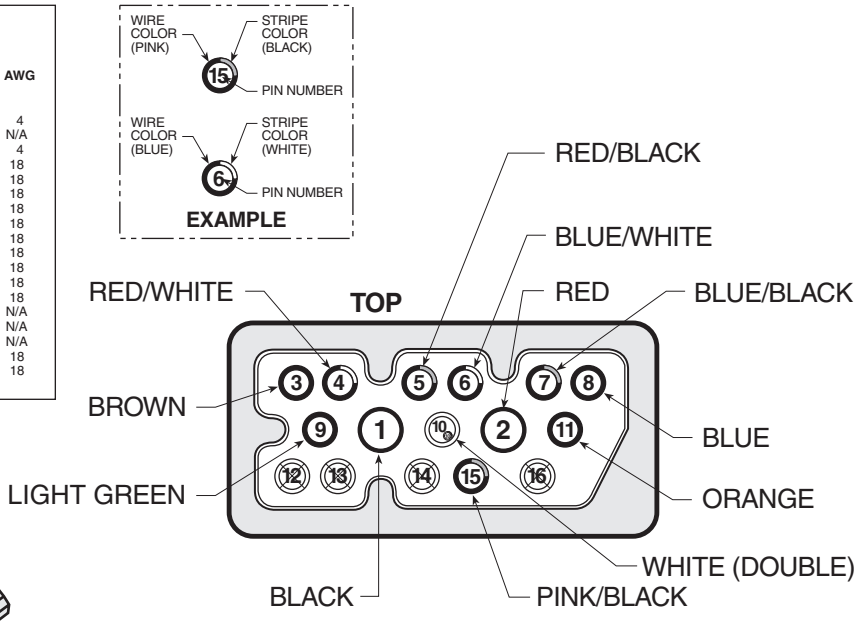




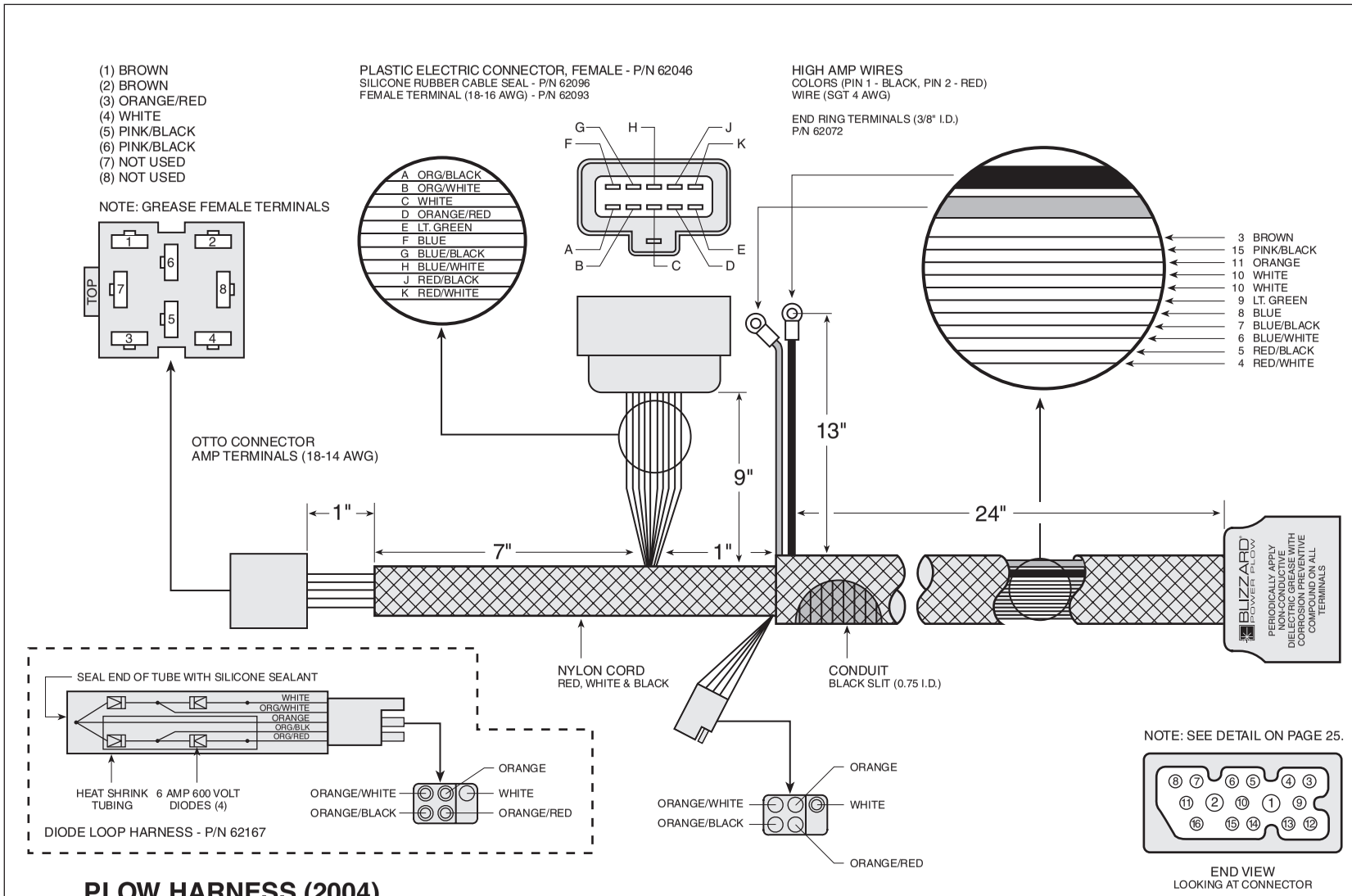
VEHICLE HARNESS PLUG (2004)
FACE VIEW LOOKING AT FEMALE CONNECTOR
FEMALE TERMINALS

BLIZZARD HARNESS PLUG (PLOW)

PIN NO.	COLOR	FUNCTION	AWG
1	BLACK	GROUND	4
	N/A	N/A	N/A
2	RED	12 VOLT DC (+)	4
3	BROWN	PUMP SOLENOID	18
4	RED/WHITE	RIGHT SLIDE BOX EXTEND	18
5	RED/BLACK	RIGHT SLIDE BOX RETRACT	18
6	BLUE/WHITE	LEFT SLIDE BOX EXTEND	18
7	BLUE/BLACK	LEFT SLIDE BOX RETRACT	18
8	BLUE	LEFT ANGLE	18
9	LT. GREEN	RIGHT ANGLE	18
10	WHITE	LIFT	18
	WHITE	LIFT	18
11	ORANGE	FLOAT	18
12	N/A	N/A	N/A
13	N/A	N/A	N/A
14	N/A	N/A	N/A
15	PINK/BLACK	12 (+) VDC FUSED	18
16	N/A	N/A	18

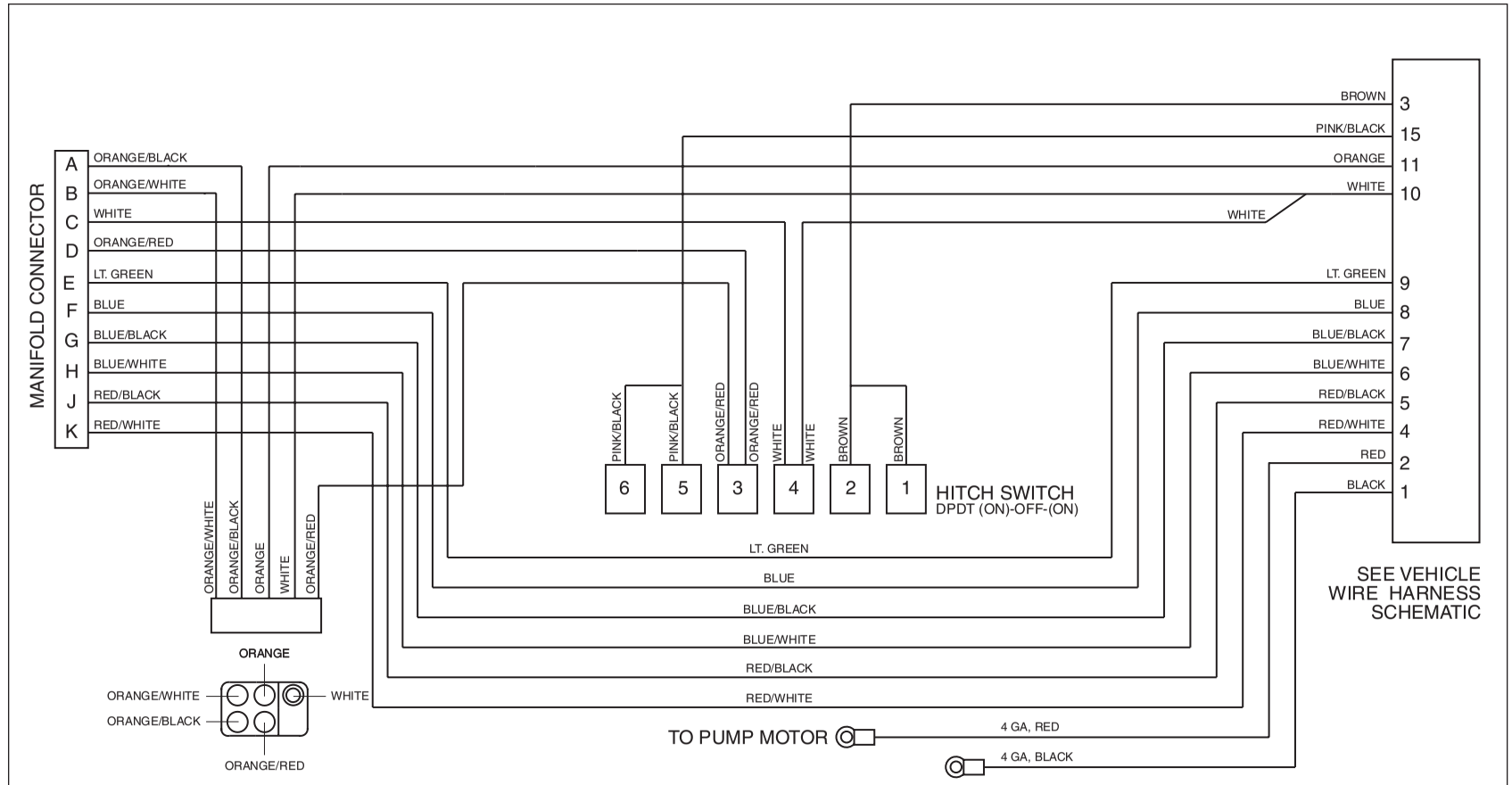


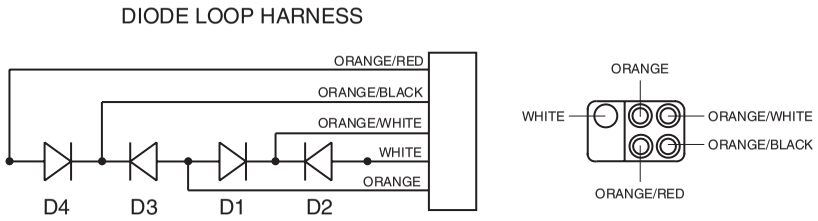
PLOW HARNESS PLUG (2004)
FACE VIEW LOOKING AT MALE CONNECTOR
MALE TERMINALS



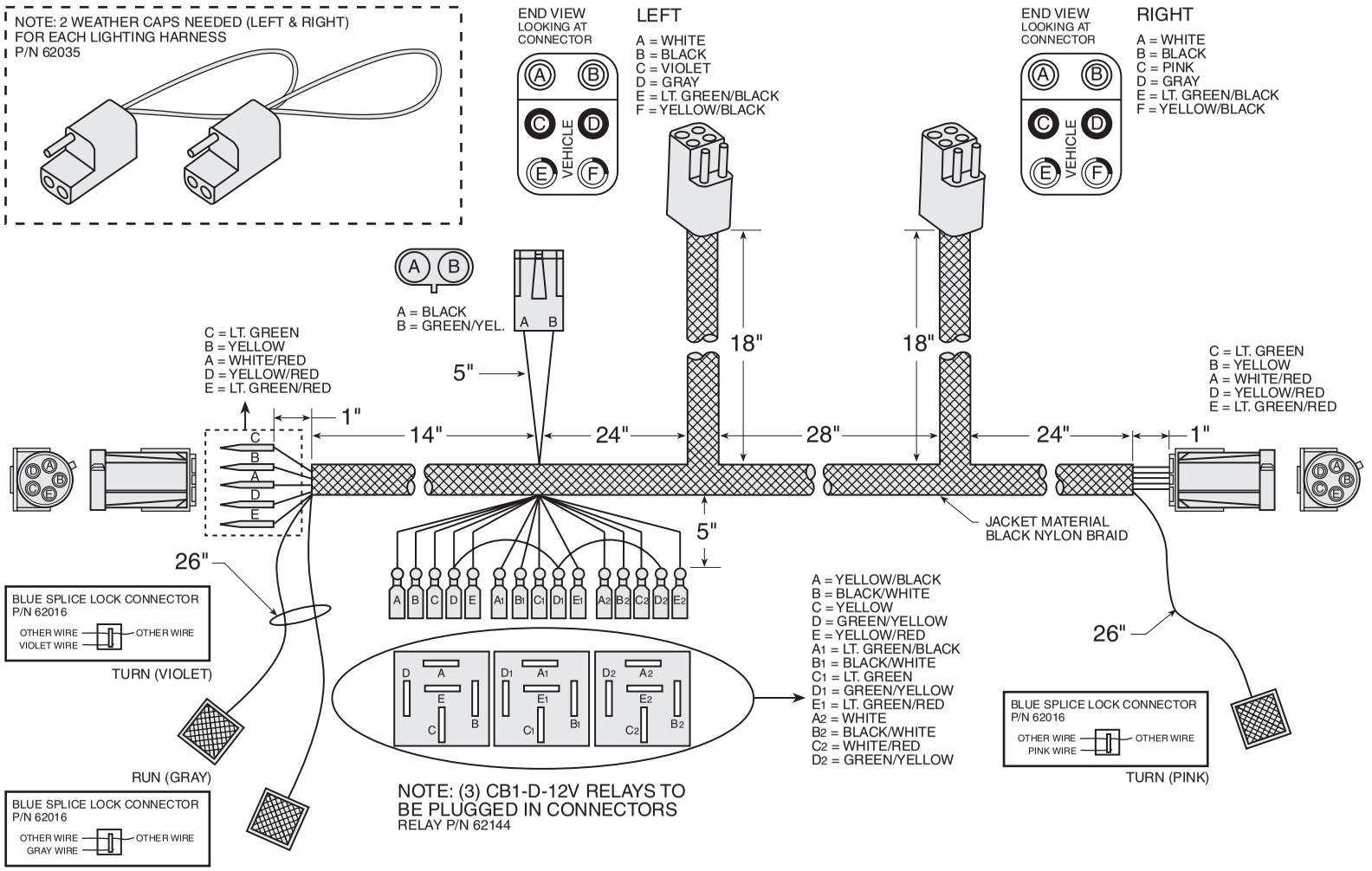
PLOW HARNESS (2004)
WITH MOLDED PLUG
P/N 62039

- NOT DRAWN TO SCALE
- UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES
- ALL WIRE 18 GA EXCEPT AS MARKED
- ALL CONNECTORS VIEWED FROM TERMINAL SIDE.





PLOW HARNESS WIRE SCHEMATIC (2004)

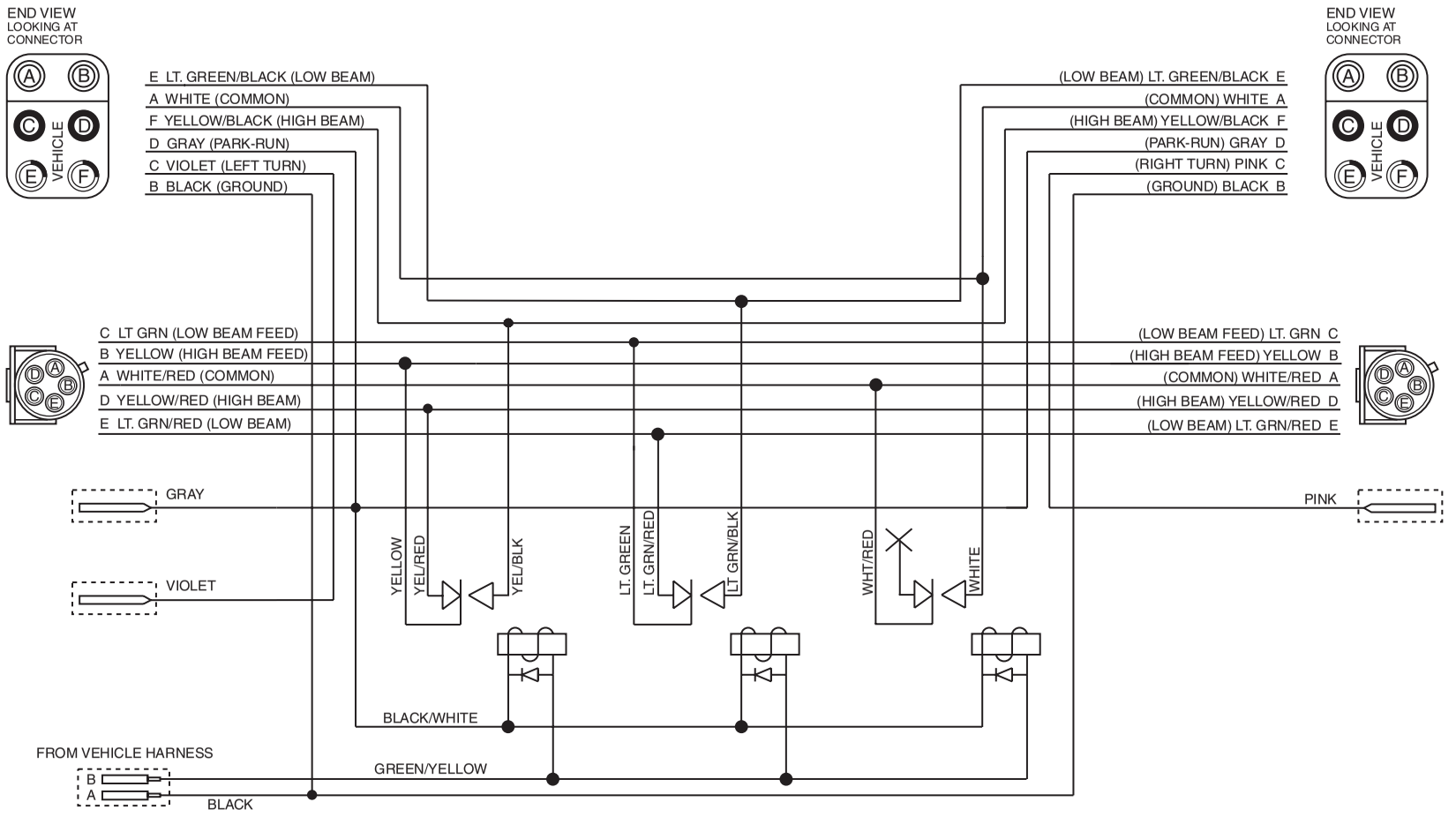


MAIN LIGHTING HARNESS (2004)

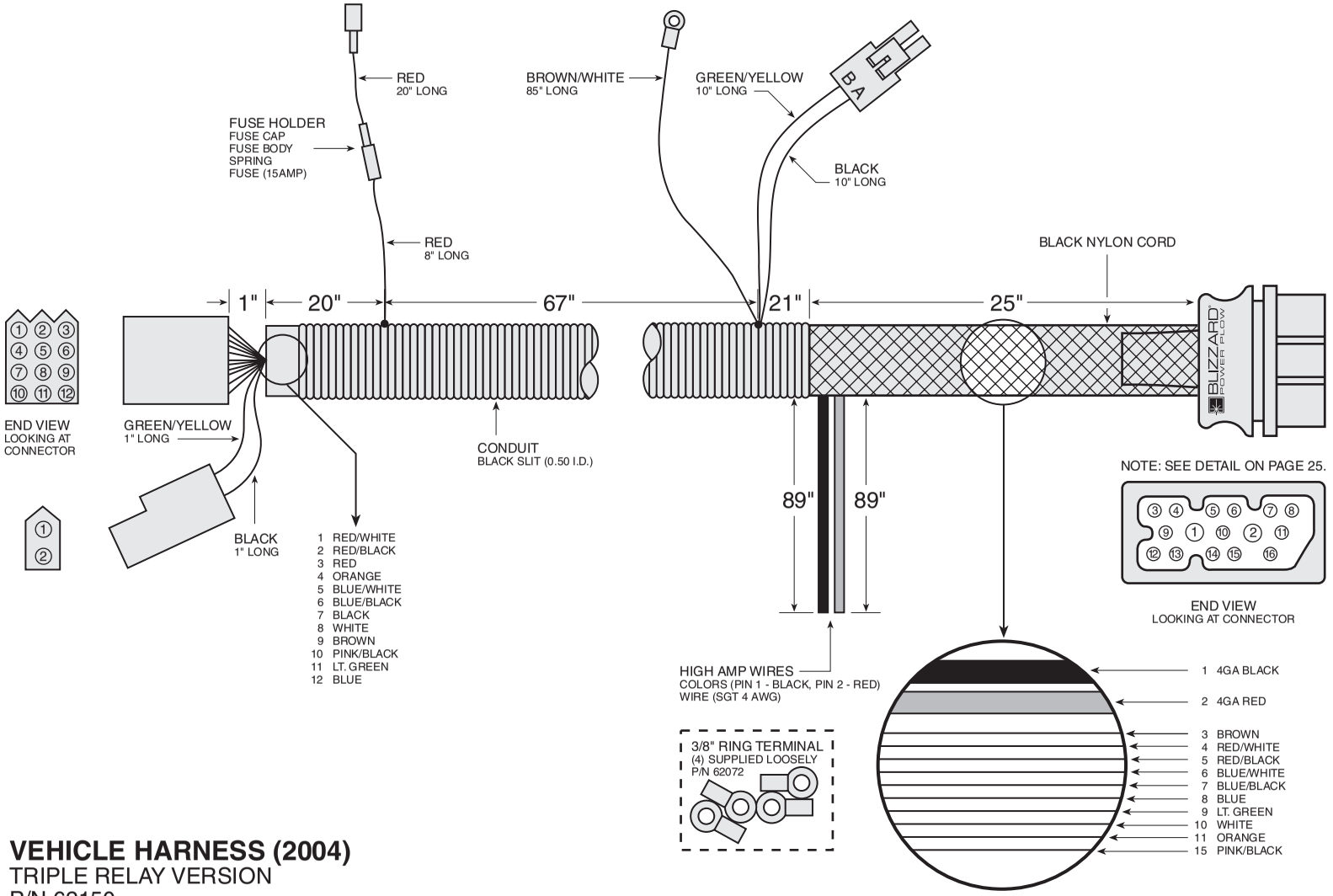
TRIPLE RELAY VERSION

P/N 62151

- NOT DRAWN TO SCALE
- UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES
- ALL WIRE TO BE 16 GA EXCEPT PINK, GRAY, GREEN/YELLOW (VIOLET TO BE 18 GA)



MAIN LIGHTING HARNESS - TRIPLE RELAY VERSION WIRE SCHEMATIC (2004)

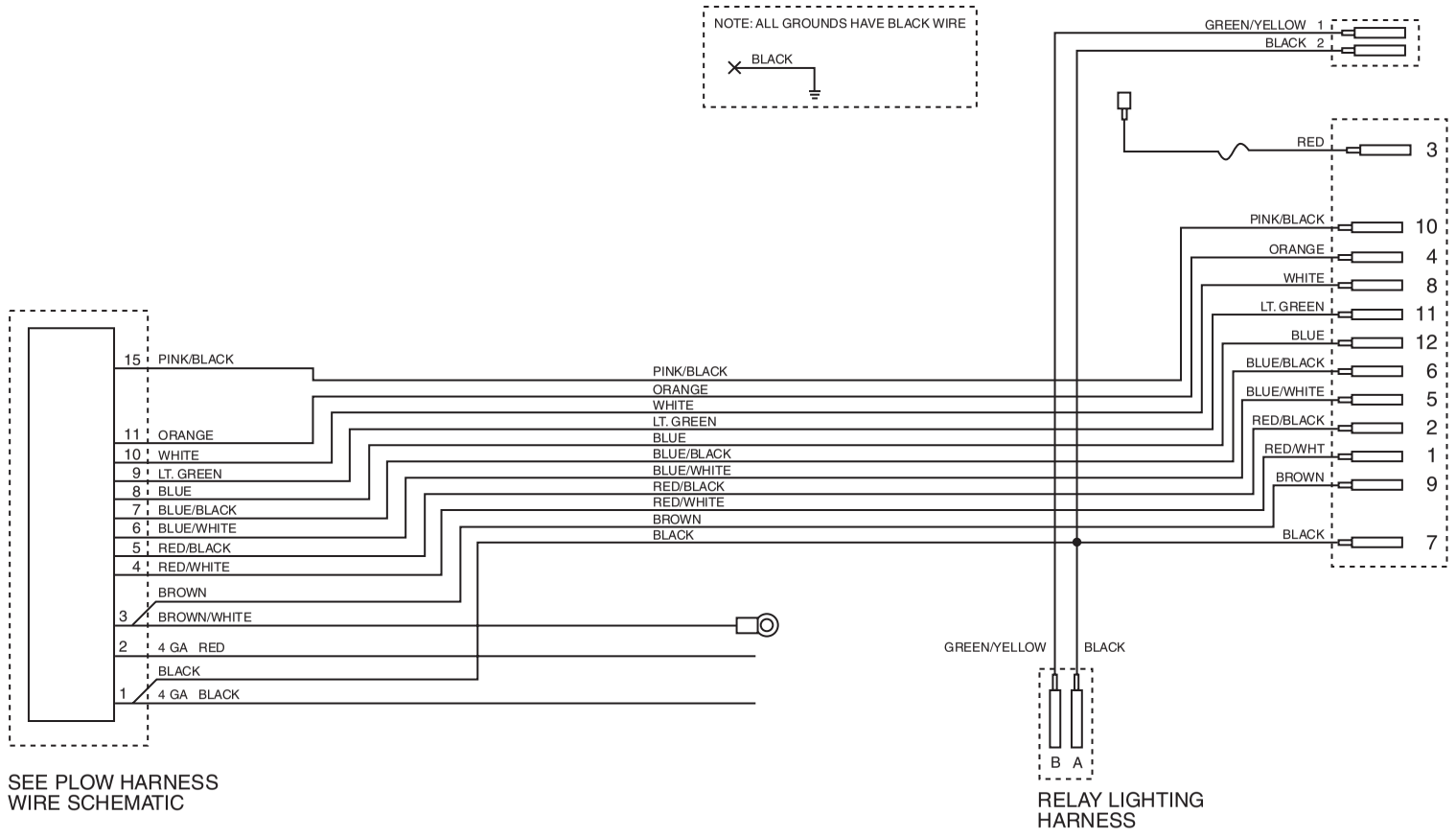


VEHICLE HARNESS (2004)

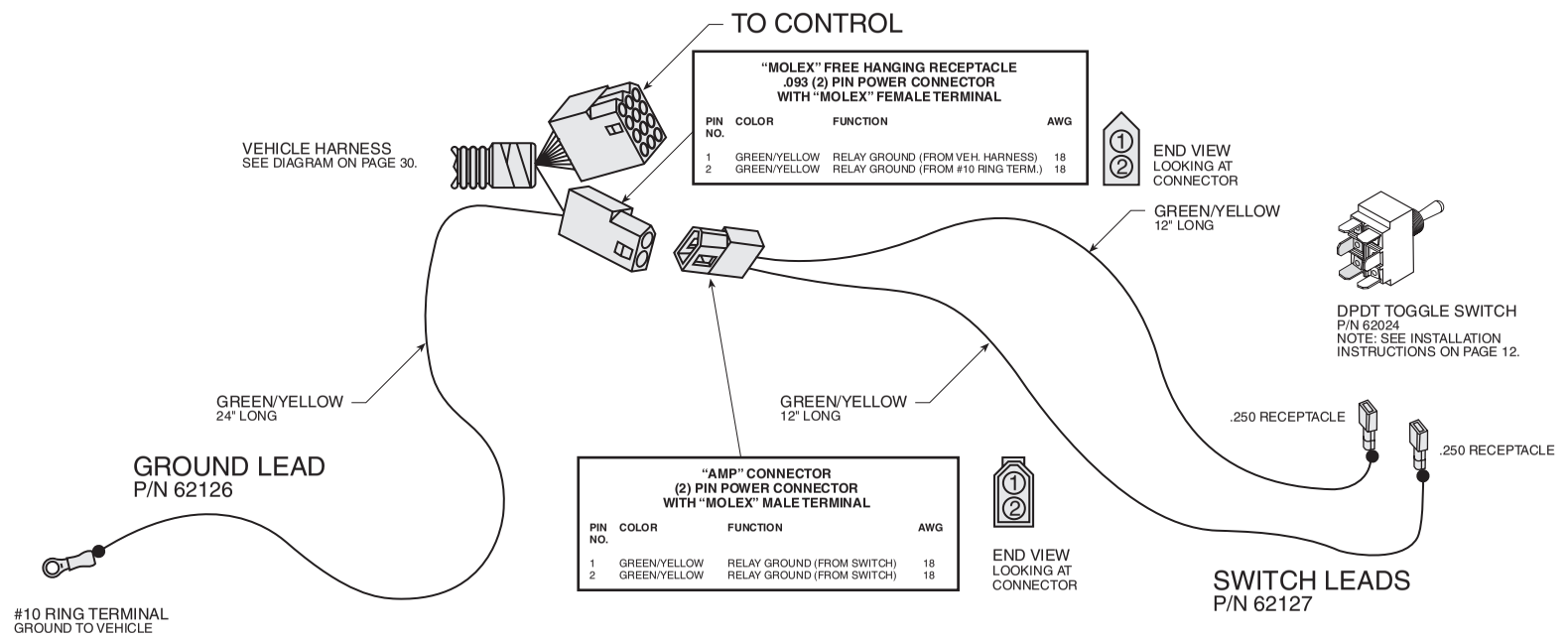
TRIPLE RELAY VERSION

P/N 62150

- NOT DRAWN TO SCALE
- UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES
- ALL WIRE 18 GA EXCEPT AS MARKED
- ALL CONNECTORS VIEWED FROM TERMINAL SIDE



VEHICLE HARNESS - TRIPLE RELAY VERSION WIRE SCHEMATIC (2004)



ON/OFF SWITCH LEADS & GROUND LEAD (2004)

FOR BLIZZARD RELAY HARNESS WHEN USING A CONTROL STATION WITH A SINGLE POWER SWITCH

NOT DRAWN TO SCALE

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS IN INCHES

Torque Specifications

Grade Identification Marking for J429 - Grade 5 Bolt
- Material: Medium carbon steel: quenched and tempered
- Minimum Proof Strength: 85,000 psi
- Minimum Tensile Strength: 120,000 psi
- Core Hardness Rockwell (min.): C25, (max.): C34
- Minimum Yield Strength: 92,000 psi

Grade Identification Marking for J429 - Grade 8 Bolt
- Material: Medium carbon alloy steel:quenched and tempered
- Minimum Proof Strength: 120,000 psi
- Minimum Tensile Strength: 150,000 psi
- Core Hardness Rockwell (min.): C33, (max.): C39
- Minimum Yield Strength: 130,000 psi

Nominal Thread Size	SAE J429 - Grade 5			Nominal Thread Size	SAE J429 - Grade 8		
	Clamp Loads (Pounds)	Tightening Torque			Clamp Loads (Pounds)	Tightening Torque	
		"Lubricated"	"Dry"			"Lubricated"	"Dry"
1/4-20	2,000	6.25 ft-lbs	8.34 ft-lbs	1/4-20	2,850	8.92 ft-lbs	11.93 ft-lbs
5/16-18	3,350	13.25 ft-lbs	17.5 ft-lbs	5/16-18	4,700	18.35 ft-lbs	25.44 ft-lbs
3/8-16	4,950	23 ft-lbs	31 ft-lbs	3/8-16	6,950	32.5 ft-lbs	44 ft-lbs
7/16-14	6,800	37 ft-lbs	50 ft-lbs	7/16-14	9,600	53 ft-lbs	70 ft-lbs
1/2-13	9,050	57 ft-lbs	75 ft-lbs	1/2-13	12,800	80 ft-lbs	107 ft-lbs
9/16-12	11,600	82 ft-lbs	109 ft-lbs	9/16-12	16,400	115 ft-lbs	154 ft-lbs
5/8-11	14,500	113 ft-lbs	151 ft-lbs	5/8-11	20,300	159 ft-lbs	211 ft-lbs
3/4-10	21,300	200 ft-lbs	266 ft-lbs	3/4-10	30,100	282 ft-lbs	376 ft-lbs
7/8-9	29,435	321 ft-lbs	430 ft-lbs	7/8-9	41,550	454 ft-lbs	606 ft-lbs
1-8	38,600	482.5 ft-lbs	640 ft-lbs	1-8	54,540	680 ft-lbs	900 ft-lbs

Grade Identification Marking for Metric - Grade 8.8 Bolt
- Material: Medium carbon steel: quenched and tempered
- Minimum Proof Strength: 580 MPa
- Minimum Tensile Strength: 800 MPa
- Core Hardness Rockwell (min.): C22, (max.): C32
- Minimum Yield Strength: 640 MPa

Grade Identification Marking for Metric - Grade 10.9 Bolt
- Material: Low carbon alloy steel: quenched and tempered
- Minimum Proof Strength: 830 MPa
- Minimum Tensile Strength: 1040 MPa
- Core Hardness Rockwell (min.): C32, (max.): C39
- Minimum Yield Strength: 940 MPa

Diameter (millimeters)	Metric Class 8.8			Diameter (millimeters)	Metric Class 10.9		
	Clamp Loads (Pounds)	Tightening Torque			Clamp Loads (Pounds)	Tightening Torque	
		"Lubricated"	"Dry"			"Lubricated"	"Dry"
5	1,389	3.42 ft-lbs	4.56 ft-lbs	5	1,987	4.89 ft-lbs	6.52 ft-lbs
6	1,965	5.81 ft-lbs	7.80 ft-lbs	6	2,812	8.34 ft-lbs	11.07 ft-lbs
7	2,826	9.74 ft-lbs	12.99 ft-lbs	7	4,044	13.95 ft-lbs	18.60 ft-lbs
8	3,579	14.10 ft-lbs	18.82 ft-lbs	8	5,121	20.15 ft-lbs	26.94 ft-lbs
10	5,672	27.90 ft-lbs	37.27 ft-lbs	10	8,116	39.92 ft-lbs	53.28 ft-lbs
12	8,243	48.71 ft-lbs	64.94 ft-lbs	12	11,796	69.74 ft-lbs	92.25 ft-lbs
14	11,246	77.49 ft-lbs	103.32 ft-lbs	14	16,092	110.70 ft-lbs	147.60 ft-lbs
16	15,882	125.46 ft-lbs	166.79 ft-lbs	16	21,970	173.43 ft-lbs	231.00 ft-lbs
18	19,423	171.95 ft-lbs	229.52 ft-lbs	18	26,868	238.37 ft-lbs	317.34 ft-lbs
20	24,784	243.54 ft-lbs	325.46 ft-lbs	20	34,284	338.00 ft-lbs	450.18 ft-lbs

37˚ JIC Flare Torque Values

Turns	Size	ft-lbs min./max.
N/A	-02	6 - 7
N/A	-03	8 - 9
2	-04	11 - 12
2	-05	14 - 15
1-1/2	-06	18 - 20
1-1/2	-08	36 - 39
1-1/2	-10	57 - 63
1-1/4	-12	79 - 88
1	-14	94 - 103
1	-16	108 - 113
1	-20	127 - 133
1	-24	158 - 167
1	-32	245 - 258

Assembly Steps w/Visual Check

1. Make sure the tubing and threads are clean.
2. Lubricate the threads with 10W hydraulic oil.
3. Hand tighten the nut/sleeve to appox. 30 in-lbs.
4. Make alignment marks on the nut and fitting.
5. Proceed to tighten to turns or ft-lb values.
6. When fully tightened make a 2nd set of alignment marks at the fully tightened position.

Note: Torque values specified are for threads lubricated with 10W hydraulic oil.

Sizes -02 through -08 are less tolerant to over-torque abuse. This will reduce the clamping force resulting in loss of seal and reduction in flow.

O-Ring Boss Torque Values

Size	ft-lbs min./max.
-02	6 - 7
-03	8 - 10
-04	13 - 15
-05	17 - 21
-06	22 - 25
-08	40 - 43
-10	43 - 57
-12	68 - 75
-14	90 - 99
-16	112 - 123
-20	146 - 200
-24	154 - 215
-32	218 - 290

O-Ring Boss Assembly

1. Verify the port, O-ring, sealing surfaces, and threads are clean and free of damage.
2. Lubricate the threads and the O-ring with 10W hydraulic oil.
3. For an adjustable O.R.B., completely back-off the lock nut and the washer.
4. Hand tighten the fitting until it contacts the port spotface. Point the elbow or tee in the desired direction and hold.
5. Proceed to tighten to the proper specified torque value.

Note: Torque values specified are for threads lubricated with 10W hydraulic oil.

Disclaimer: All torque values included in the charts above are advisory only, and their use by anyone is entirely voluntary. Reliance on the contents for any purpose by anyone is the sole risk of that person and Blizzard Corporation is not responsible for any loss, claim or damages arising therefrom. Blizzard Corporation has made an effort to present the above contents accurately, but we do not guarantee its completeness or validity. This information is subject to change at any time, without notice. Blizzard Corporation makes no representations or warranties, express or implied, in connection with the information.

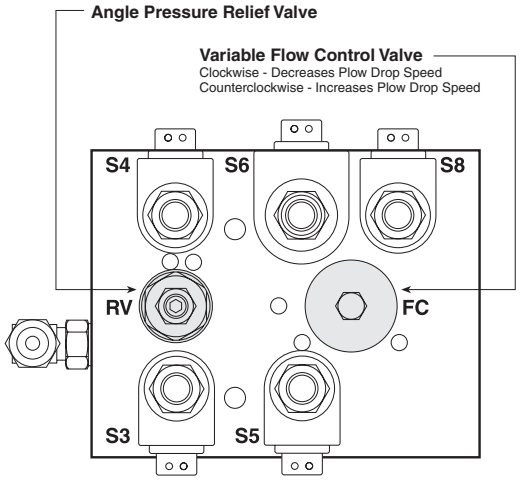
Troubleshooting Guide

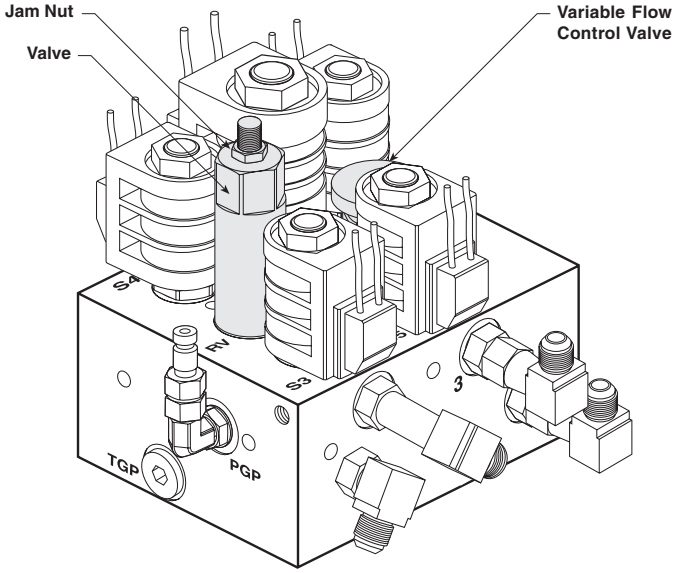
Prior to diagnosing your straight blade, verify that all connectors (plow and vehicle wire harness plugs, headlight adapters, control box, fused hot lead, draw latch switch, solenoid ground wire connection, coil wire lead harness, plow headlight harnesses) are free of corrosion and are well lubricated with dielectric grease. Insuring that all connectors are in good working order will save time in determining your snowplow's service needs.

Problem	Probable Cause(s)	Suggested Remedy
Pump will not run.	Plow wire harness may not be properly connected to the vehicle wire harness.	Verify the wire harnesses are properly connected. Review the instruction on pages 9-12.
	Power or ground cables to the battery, pump or solenoid may not be properly connected.	Properly connect all cables. Clean and lubricate with dielectric grease. If power does not resume, check the continuity of all cables to find the break.
Pump will not run, power to the solenoid.	The black ground wire and brown/white activation wire on the solenoid are not properly connected.	Properly connect both cables. Test for power by initiating any joystick function except the float. Note: The POWER rocker switch must be in the "ON" position to properly test any plow function. If the solenoid is grounded and no power exists, diagnose the plow & truck wire harnesses.
Pump will not run with power to the solenoid. Brown/white activation wire and ground are properly connected.	The red, hot wire to the pump motor is not properly connected.	Connect red wire and check the black ground wire. If problem is not resolved, the solenoid could be inoperable or the pump motor may be worn. Replace the solenoid if there is no power to the pump. Replace the pump motor if it is receiving power.
Pump will not turn off. Do not allow the pump motor to continuously run. Unplug both of the harnesses until the pump can be tested or a Blizzard dealer can diagnose the problem.	Solenoid may be damaged.	Disconnect the brown/white activation wire from the solenoid. If the problem is not resolved, replace the solenoid.
	Short in the joystick control or wire harness.	Disconnect the joystick in the cab. If the solenoid turns off, there is a short in the electrical system.
Pump runs but plow functions are slow.	Fluid level in the pump reservoir is low. Fluid is leaking.	Add fluid to within 3/4" from the top of the tank. Check for leaks around the pump, manifold and cylinders.
	Amperage from the vehicle's alternator is too low.	Repair or replace vehicle alternator. System amperage draw is 65 Amps at 1000 PSI.
	Pump filter may be clogged.	Remove the pump tank and thoroughly clean the filter.
A-frame latch will not move.	Draw latch is binding the A-frame latch.	Lower the draw latch to relieve binding on the A-frame latch and reposition the A-frame latch as needed.
Plow will not lift. Pump works properly.	Control station in the cab may not be properly connected.	Connect the power connector from the control to the vehicle wire harness.
	A-frame latch is in the (down) locked position.	Lift the A-frame latch into the raised position.
	Diode loop harness may be corroded or could have failed.	Clean diode loop harness thoroughly and/or replace.
	Coils on the manifold may be damaged.	Remove the S6 coil from the cartridge valve. Position a screwdriver inside of the coil and push the draw latch connect/disconnect toggle switch upward. The screwdriver should be magnetically drawn to the coil. Replace the coil if there is no action.

Problem	Probable Cause(s)	Suggested Remedy
Plow will not lift with magnification to the S6 coil.	Hydraulic lock in the manifold. This occurs if the voltage is too low on the coils – should be 11.8 volts.	Loosen cartridge valve S6 to relieve pressure and re-tighten. DO NOT OVERTIGHTEN! Valves should be torqued to a maximum of 24 ft. lbs.
	Solenoid cartridge valve may be contaminated.	Remove any foreign objects that may be obstructing proper valve operation. Replace if not operating properly after cleaning.
Plow will not stay angled when plowing.	The angle pressure relief valve is set too low. NOTE: Increasing the pressure relief valve will cause damage to your plow. Do not set the pressure relief greater than 3000 PSI (See illustration below)	Check the pressure relief by testing the valve inline with the cylinder. Attach a tee fitting to the angle cylinder hydraulic adapter and connect the hose and pressure gauge to the tee. Push the plow against a solid object and record the pressure reading. Note: The setting should not exceed 3000 PSI.
Plow will not angle, pump works.	Review all probable causes above.	NOTE: Verify coils S3 & S4 for angle functions.
Plow lowers too slow.	Variable flow control valve is not adjusted properly. (See illustration below)	Turn flow control valve counterclockwise in small increments and test. NOTE: Never make adjustments when the plow is in the raised position! Fluid pressure will make the valve difficult to adjust and serious injury or death can occur from a falling plow.
	Review all probable causes for plow will not lift (Page 34).	Verify S5 coil (float) or S5 & S8 coils (disconnect) for magnetism.
Plow drops sporadically.	Variable flow control valve is opened too far.	Turn clockwise 1/16 of a turn and test. See warning above.
Headlights will not switch from the vehicle to the snowplow.	No power or ground to the headlight relay.	Verify green/yellow (G/Y) wire for the ground is connected. Verify black/white (BK/W) wire for the power is connected. If both are connected properly, replace the headlight relay.

Should your snowplow develop other problems not indicated in the Troubleshooting Guide, contact your local dealer for technical assistance and/or replacement parts.





BLIZZARD®
STRAIGHT BLADES

LIMITED CONSUMER WARRANTY

This warranty covers defects in material and workmanship except as set forth below.

WARRANTED PARTY:

This warranty applies only to the "Original Purchaser" who purchased this plow from an Authorized Blizzard Dealer, for personal, family or household use.

TERM OF WARRANTY:

This Blizzard straight blade snowplow is warranted for the following period:
Parts and labor are warranted for one year from date of purchase.

BLIZZARD CORPORATION'S WARRANTY REMEDY:

Blizzard Corporation will, at its sole discretion, repair or replace defective parts at no charge.

CUSTOMERS RESPONSIBILITY:

To obtain warranty service, the purchaser must return the defective snowplow to any Authorized Blizzard Dealer. The purchaser must verify the original purchase date. Transportation costs to and from the dealer will be the responsibility of the purchaser.

ITEMS NOT COVERED UNDER THIS WARRANTY:

This limited warranty does not cover the following:

1. Expendable parts such as cutting edges, plow shoes, hoses, fasteners, blade guides, paint finish, etc.
2. Any snowplow or part thereof which has been repaired or altered by anyone other than an Authorized Blizzard Dealer.
3. Any snowplow or part thereof which has been subject to neglect, misuse, accident, improper installation, maintenance, or storage. This includes, but is not limited to, corrosion of any electrical components.
4. Snowplows mounted on vehicles other than those for whom Blizzard Corporation has provided a specific undercarriage system.
5. Blizzard Corporation does not assume liability for damage to the purchaser's vehicle resulting from the attachment and use of a Blizzard straight blade snowplow. Vehicle risk is the sole responsibility of the purchaser.

WARRANTY LIMITATIONS:

THIS WARRANTY IS OFFERED IN LIEU OF ANY OTHER EXPRESS WARRANTY.

THE DURATION OF ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY.

BLIZZARD CORPORATION'S LIABILITY IS EXPRESSLY LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. BLIZZARD CORPORATION SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY THE NEGLIGENCE OR FAULT OF BLIZZARD CORPORATION.

State Laws: Some states do not allow exclusion of incidental or consequential damages or the limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty does not apply if you purchased your snowplow for other than personal, family, or household use. If purchased for other than personal, family or household use, refer to the Blizzard Straight Blade Commercial Warranty.

BLIZZARD®
CORPORATION

95 AIRPARK BOULEVARD ■ CALUMET, MICHIGAN 49913 ■ (906) 482-5555

1029-7-99 REV 8/01

BLIZZARD®
STRAIGHT BLADES

COMMERCIAL WARRANTY

This warranty covers defects in material and workmanship except as set forth below.

WARRANTED PARTY:

This warranty applies only to the “Original Purchaser” who purchased this plow from an Authorized Blizzard Dealer, for commercial use.

TERM OF WARRANTY:

This Blizzard straight blade snowplow is warranted for the following period:
Parts and labor are warranted for one year from date of purchase.

BLIZZARD CORPORATION’S WARRANTY REMEDY:

Blizzard Corporation will, at its sole discretion, repair or replace defective parts at no charge.

CUSTOMERS RESPONSIBILITY:

To obtain warranty service, the purchaser must return the defective snowplow to any Authorized Blizzard Dealer within the warranty period. The purchaser must verify the original purchase date. Transportation costs to and from the Dealer will be the responsibility of the purchaser.

ITEMS NOT COVERED UNDER THIS WARRANTY:

This warranty does not cover the following:

1. Expendable parts such as cutting edges, plow shoes, hoses, fasteners, blade guides, paint finish, etc.
2. Any snowplow or part thereof which has been repaired or altered by anyone other than an Authorized Blizzard Dealer.
3. Any snowplow or part thereof which has been subject to neglect, misuse, accident, improper installation, maintenance, or storage. This includes, but is not limited to, corrosion of any electrical components.
4. Snowplows mounted on vehicles other than those for whom Blizzard Corporation has provided a specific undercarriage system.
5. Blizzard Corporation does not assume liability for damage to the purchaser's vehicle resulting from the attachment and use of a Blizzard straight blade snowplow. Vehicle risk is the sole responsibility of the purchaser.

LIMITS OF BLIZZARD CORPORATION’S LIABILITIES:

BLIZZARD CORPORATION'S LIABILITY IS EXPRESSLY LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. BLIZZARD CORPORATION SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY THE NEGLIGENCE OR FAULT OF BLIZZARD CORPORATION.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED AND IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This warranty does not apply if you purchased your snowplow for personal, family, or household use.
In this case, refer to the Blizzard Straight Blade Limited Consumer Warranty.

BLIZZARD®
CORPORATION

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1030-7-99 REV 8/01

MODELS 680LT 720LT

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www.blizzardplows.com

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